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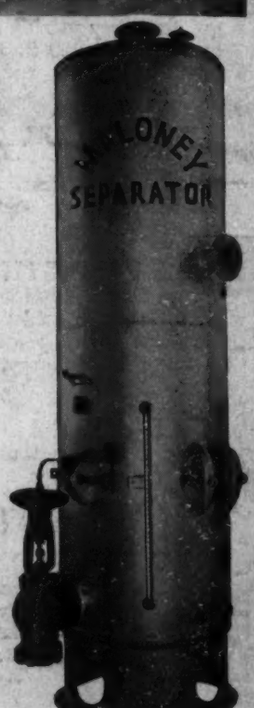

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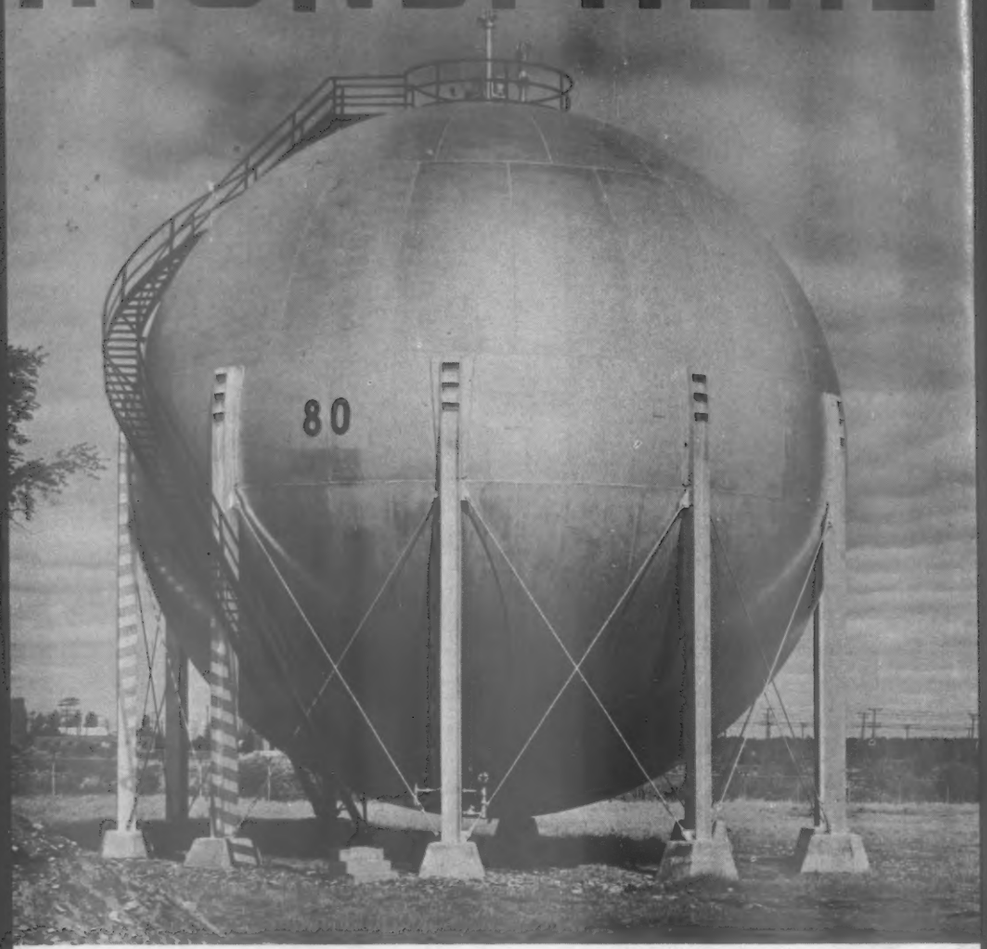

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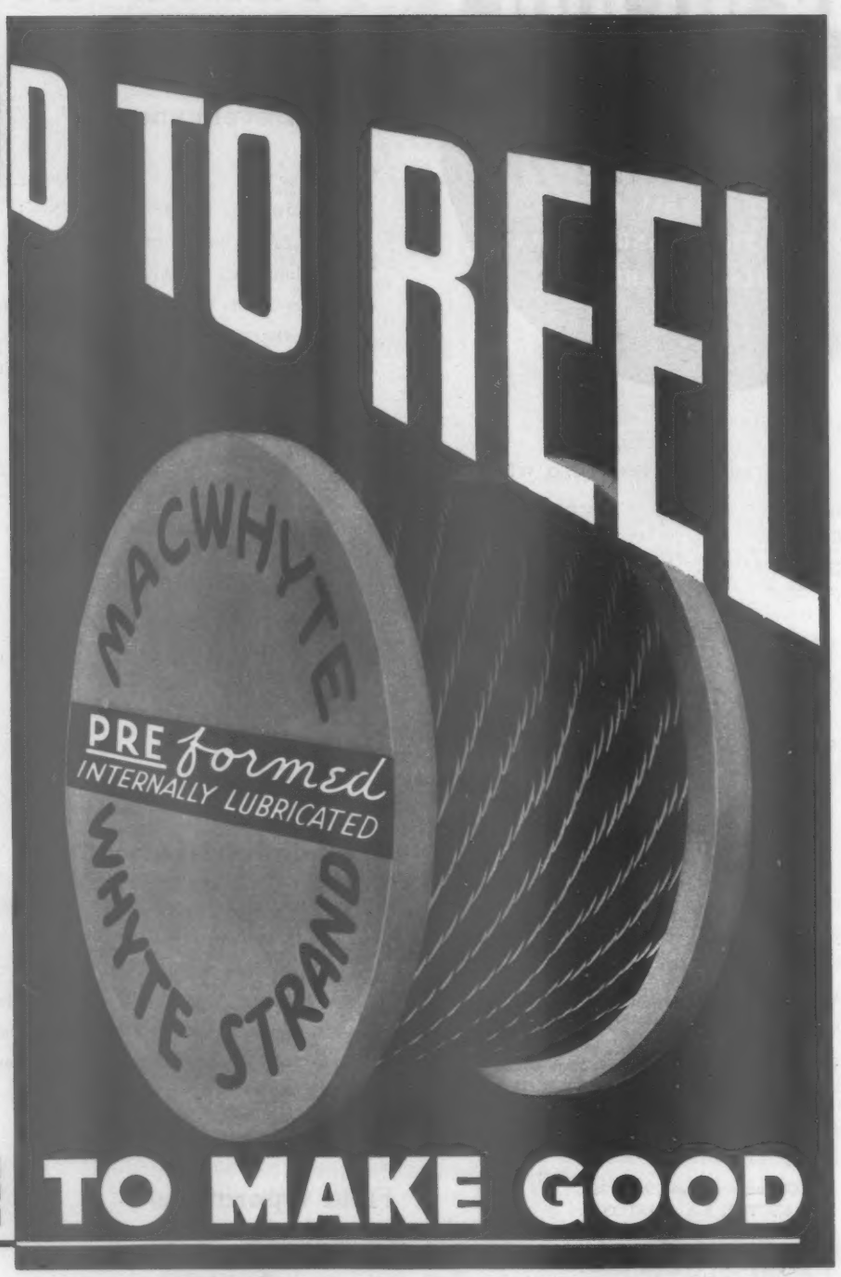

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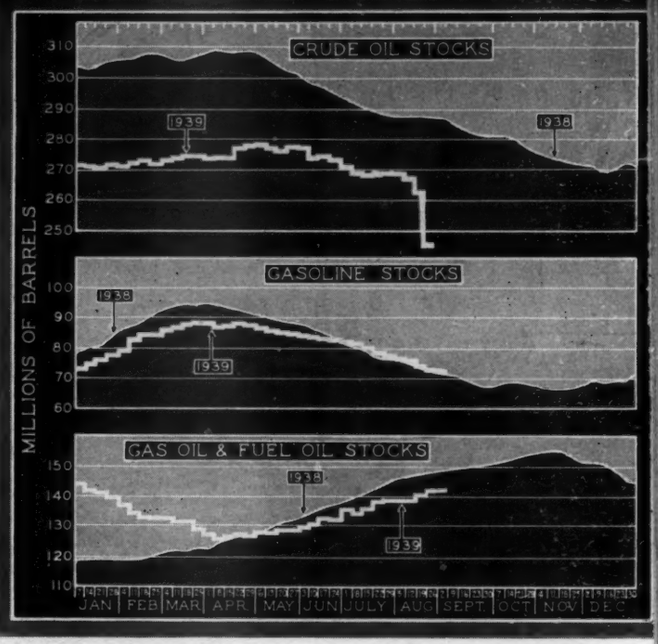
Trends

Crude Inventories Nearing Minimum Needs of Industry



THE oil industry over the past week presented the strongest statistical and market front in over a year. As the full effects of the shutdown in six oil states of the southwest ending last week were measured, it was apparent that the nation's stocks of refinable crude east of California would shortly be reduced to minimum working requirements. Government reports for the 4 weeks ending August 26 showed that oil stocks were reduced 21,531,000 bbl. of which 15,504,000 bbl. occurred the last week.

CRUDE PRODUCTION *2,345,146 bbl. daily average—up 899,652 bbl. One year ago 3,353,991 bbl.*

CRUDE STOCKS *246,982,000 bbl. as of August 26—down 15,504,000 bbl. One year ago 285,029,000 bbl.*

GASOLINE STOCKS *73,475,000 bbl. as of August 26—down 1,263,000 bbl. One year ago 71,893,000 bbl.*

GAS AND FUEL OIL STOCKS *141,274,000 bbl. as of August 26—up 1,249,000 bbl. One year ago 146,328,000 bbl.*

REFINERY RUNS *3,475,000 bbl. daily week ending August 26—down 100,000 bbl. One year ago 3,269,000 bbl.*

(Later A.P.I. figures on refinery stocks and runs not available owing to Labor Day holiday.)

This reduction lowered crude inventories to 246,982,000 bbl. on August 26. It is believed that the government report for the week ending September 2, with the shutdown still in effect for several days, will show another large reduction. Statisticians also believe the liquidation of crude stocks will continue through September, provided the oil states carry out their allowable programs as announced last week. Oklahoma, Kansas, Louisiana and New Mexico have each reduced their September allowable under the Bureau of Mines recommendation as to demand. For the four states, the B. of M. recommendation for September is 960,000 bbl. daily with the state allowables 91,880 bbl. under that figure.

The position of Texas in regard to the September production presumably will not be known until after the hearing Monday in Austin. It is understood that the Railroad Commission has indicated that the September production of that state will be at least 15 per cent under the August allowable. The East Texas allowable, in the light of recent federal court decisions, is an important factor in Texas.

With the probable production trends in September in mind some statisticians are predicting that crude-oil stocks will be reduced to around 235,000,000 bbl. by the end of the month. Most economists agree that minimum working requirements in crude stocks for the entire country are from 225,000,000 to 250,000,000 bbl.

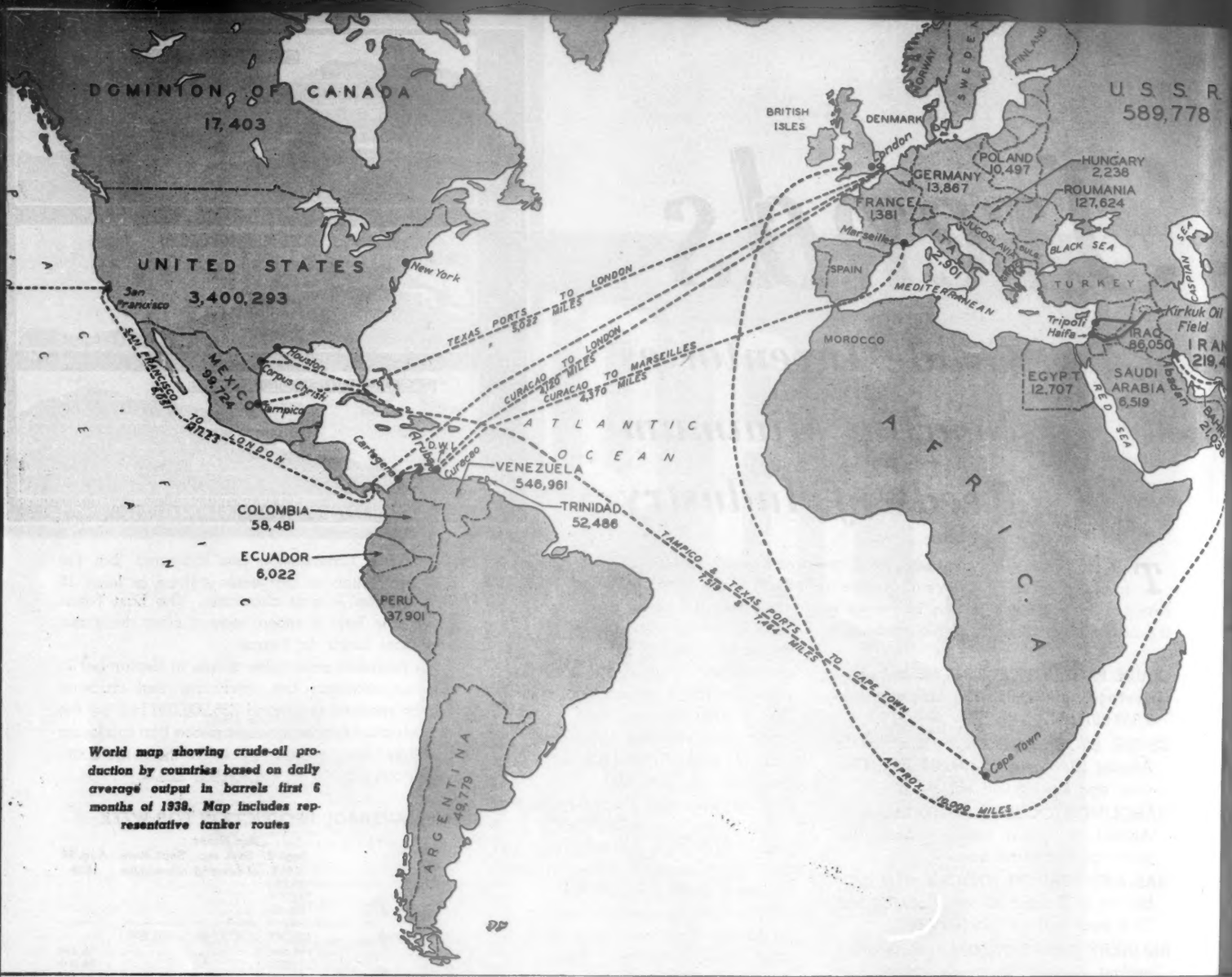
CRUDE PROD. BBLS. DAILY
REF. RUNS BBLS. DAILY
CRUDE OIL PRODUCTION 1938
CRUDE OIL PRODUCTION 1939
REFINERY CRUDE RUNS 1938
REFINERY CRUDE RUNS 1939

DAILY AVERAGE PRODUCTION FOR WEEK

	Sept. 2, 1939	Bur. Mines Sept. est. of demand	Sept. state allowables	Aug. 26 1939
Oklahoma City	25,236	.....	.....	.....
Seminole fields	12,260	.....	.....	.....
Remainder of state	88,490	.....	.....	.....
Total Oklahoma	125,986	429,300	384,950	.....
East Texas	141,862	.....	.....	3,498
West Texas	154,676	.....	.....	24,600
North Central Texas	82,100	.....	.....	20,800
Texas Panhandle	47,362	.....	.....	18,196
East Central Texas	54,586	.....	.....	4,449
Gulf Coast Texas	284,320	.....	.....	72,650
Southwest Texas	28,881	.....	.....	16,100
Total Texas	793,787	1,408,300	1,455,718	160,293
North Louisiana	38,890	.....	.....	28,330
Gulf Coast Louisiana	122,292	.....	.....	44,100
Total Louisiana	161,182	255,700	235,475	72,430
California	600,800	596,000	598,300	614,250
Kansas	34,522	166,300	147,705	.....
Arkansas	33,195	50,700	.....	29,785
Eastern fields	98,100	101,300	.....	97,500
Illinois	311,439	248,700	.....	311,112
Michigan	67,815	55,000	.....	65,284
New Mexico	32,900	108,700	100,000	7,530
Rocky Mountain area	85,420	90,700	.....	87,310
Total United States	2,345,146	3,510,700	.....	1,445,494

The start of another European war and the effects of the shutdown are being reflected in crude-oil and refinery markets. All buyers who reduced crude-oil price schedules in the southwestern states, starting August 10, have returned to their former schedules. Reports since the first of the month indicate that the quantity of crude oil selling under the posted prices of major companies has decreased in several fields. Another bullish factor is the recent flattening out of the production curve in Illinois, together with the belief that the state's governor will shortly recommend the passage of a conservation act to a special session of the legislature next month.

There have been scattered increases in refinery markets over the past 2 weeks with general increases in prospect. Due partially to the expected war needs and the statistical position, fuel oils are stronger than gasolines. Less price cutting in retail markets is reported.



World map showing crude-oil production by countries based on daily average output in barrels first 6 months of 1939. Map includes representative tanker routes

Few Nations to Supply

THE start of another World War nearly 21 years after the close of the previous one finds the oil industry again occupying the most important position among all industries, except those engaged in the actual manufacture of war materials and equipment.

All belligerents will be more dependent than ever before on oil in carrying on their land, air, and water warfare. Mechanized equipment is largely dependent on oil for power from the battle fronts to the transportation of men and supplies behind the lines. Many of these units of combat—particularly the modern airplane—require specially refined fuels and lubricants so that stress will be placed on quality as well as quantity in carrying on all phases of war activity.

Those in close touch with world conditions agree that they probably will not be able to accurately gage market trends due to the war for several weeks. Much will depend on how the war activities interfere with the normal movement of crude oil and refined products to consumers. It is also apparent that the war temporarily at least will mean some changes in the shipment of products to neutral countries, whose demand will be influenced by marine and industrial developments.

Many statisticians of the industry are now engaged in studies covering the production, refining and marketing of petroleum products by countries, including the important factor of water transportation. The accompanying map and table were prepared to give the reader a quick summary of world crude-oil production and refining capacity.

Since the close of the 1914-18 war, there has been widespread competition among the principal nations to find new oil supplies. All have endeavored to find the oil within their borders with little success, except the U.S.S.R., which has been able to expand production within and outside its old producing areas. The most important additions have been in South America, Iraq, and the Persian Gulf countries. More than 95 per cent of the total world supply is found in 10 countries as follows:

	Country†	Pct. of total
United States	3,400,293	60.9
U.S.S.R.	589,776	10.5
Venezuela	546,961	9.0
Iran	219,425	3.9
Netherlands East Indies*	177,348	3.1
Rumania	127,624	2.2
Mexico	99,724	1.8
Iraq	86,050	1.5
Colombia	58,481	1.1
Trinidad	52,486	.9
Total	5,358,170	95.9

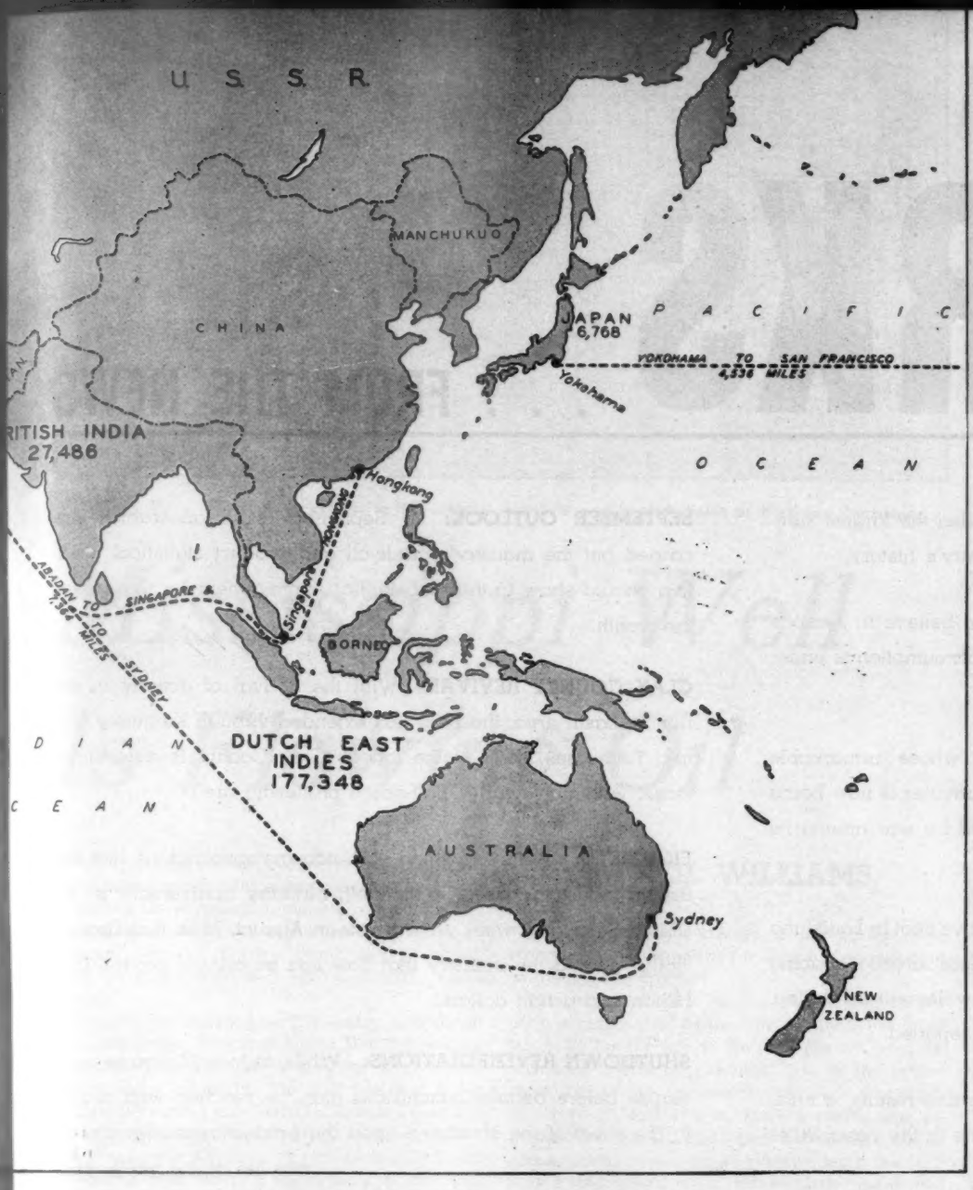
*Includes Sarawak.
†Daily average crude output first 6 months of 1939.

At this time, the South American countries are the principal suppliers of nations now at war as well as many of the neutral countries of Europe, with the exception of the U.S.S.R. and Rumania which have crude oil in excess of their requirements. It is apparent that it is to these South American countries and the United States that these European countries must look for any large increase in their requirements as a result of war activities.

Export Oil

All of the 10 largest oil-producing countries have crude oil in excess of their own requirements and military observers have pointed out that the movement of this export oil will be a major factor in determining the success or failure of the countries at war.

In the case of South America, the operations of Venezuela, Colombia, and Peru, which are the only countries which have excess output of any consequence, can be grouped together. These three countries produced 643,343 bbl. of crude daily the first half of this year, of which approximately 600,000 bbl. was sold to buyers outside their own borders. More than half of the output eventually went to European buyers. The crude-producing operations in Venezuela should be com-



World Crude-Oil Production and Refinery Capacity

	CRUDE OIL PRODUCTION (Bbl. daily)§	REFINERY CAPACITY (Bbl. daily)
Argentina	49,779	70,000
Australia	.....	5,600
Bahrein Island	21,038	25,000
Belgium	.....	10,400
Belgian Congo	.....	250
Bolivia	200	550
Canada	17,403	175,000
Canary Islands	.....	5,000
Chile	.....	475
Colombia	58,481	10,000
Cuba	.....	2,500
Denmark	.....	500
Ecuador	6,022	1,000
Egypt	12,707	12,000
Estonia	.....	1,050
France	1,381	125,000
Germany†	13,867	95,000
Great Britain	.....	90,000
Hungary	2,238	10,400
India (Burma, Assam and Punjab)	27,486	34,500
Iran (Persia)	219,425	180,000
Iraq	86,050	3,000
Italy (inc. Albania)	2,901	35,000
Japan (inc. Tiawan)	6,768	48,200
Jugoslavia	.....	4,450
Latvia	.....	700
Manchukuo	.....	6,000
Mexico	99,724	143,000
Netherlands	.....	16,150
Netherland East Indies‡	177,348	155,000
Netherland West Indies	.....	460,000
Norway	.....	1,000
Palestine	.....	30,000
Peru	37,901	17,200
Poland	10,497	26,500
Rumania	127,624	235,000
Saudi Arabia	6,519	.....
Spain	.....	550
Sweden	.....	1,300
Sakhalin	6,900	.....
Trinidad	52,486	50,000
Union of South Africa	.....	1,000
U.S.S.R. (Russia)	589,778	594,000
United States	3,400,293	*4,400,000
Uruguay	.....	3,800
Venezuela	546,961	60,000
Others (Morocco, Great Britain, Australia and Algeria	900	.....
Total	5,582,677	7,167,075

*Operating plants only. †Includes Austria and Czechoslovakia. ‡Includes Sarawak. §Average first 6 months 1939.

War Oil Needs

bined with two large refinery operations off the coast of Venezuela located on Aruba and Curacao islands of the Netherlands West Indies. These two plants refine the bulk of the crude produced in Venezuela and one plant refines part of the Colombian crude.

The refineries, which are two of the largest in the world, are owned by subsidiaries of the Standard Oil Co. of New Jersey and the Royal Dutch-Shell whose producing subsidiaries account for approximately 80 per cent of the crude output in Venezuela. A Standard of New Jersey unit has all the marketed crude oil in Colombia and a Canadian Standard unit has a large part of the production in Peru.

The production and refining operations of Trinidad, British West Indies, a few miles off the coast of Venezuela, can be combined with these northern South American operations for the purpose of this survey. Trinidad is the largest oil domain of the British Empire and a large part of its surplus production in excess of domestic needs, amounting to about 40,000 bbl. daily, goes to Great Britain.

Thus, this northern tier of South American countries including Trinidad and the adjoining Netherlands West Indies, refineries, have about 640,000 bbl. of crude oil and products available to foreign markets. At this time this surplus is largely absorbed in European outlets with smaller quantities going to markets of South America and the Caribbean Sea area.

United States Second

The next biggest factor in world markets is the United States. World production of petroleum outside the United States is not equal to the demand and the first 6 months of this year exports of petroleum products from this country to foreign buyers exceeded imports by 425,000 bbl. daily. Most of this excess went to European buyers and Japan.

The third largest factor in world markets is Iran (Persia). The production of that country averaged 219,000 bbl. daily the first half of this year and it is estimated that approximately 200,000 bbl. daily is available to outside markets. Most of the crude is refined at Abadan on the Persian Gulf and from there shipped to world markets. This refinery and practically all of the production of Iran is owned by the Anglo-Iranian Oil Co., Ltd., largest of the English companies, in which the British Government has a 50 per cent

(Continued on Page 36)

Petroleum Requirements of Britain, France and Germany

Supply source—	1938 (Bbl.)	Per cent of total
GREAT BRITAIN		
United States	16,065,000	18.5
Venezuela	3,968,000	4.5
Netherland West Indies	30,752,000	35.4
British West Indies (Trinidad)	5,946,000	6.8
Iraq	4,058,000	4.6
Iran	17,910,000	20.6
Rumania	2,947,000	3.4
Netherland East Indies	691,000	.7
U.S.S.R.	2,283,000	2.6
Mexico	1,553,000	1.8
Peru	625,000	.7
Total	86,788,000	
FRANCE		
Iraq	23,445,000	39.2
United States	20,876,000	34.9
Venezuela	4,746,000	7.9
Colombia	2,966,000	4.9
Peru	2,602,000	4.3
Rumania	1,872,000	3.1
Central America (Mexico)	1,040,000	1.7
Iran	830,000	1.4
U.S.S.R.	739,000	1.2
Ecuador	338,000	.5
Netherland East Indies	220,000	.3
Total	59,674,000	
GERMANY		
Netherland West Indies	10,880,000	32.6
United States	8,891,000	27.2
Rumania	3,646,000	11.1
Venezuela	1,896,000	5.8
Netherland East Indies	1,510,000	4.6
Iran	1,425,000	4.3
Peru	1,046,000	3.2
U.S.S.R.	562,000	1.7
Total	32,719,000	

SPARKS . . . FROM THE NEWS

NEW RECORD: The Labor Day holiday ended the largest summer gasoline-consuming period in the industry's history.

FURNACE-OIL SEASON: While it is hard to believe in sections where summer weather prevails, furnace-oil consumption is under way at many points.

PEACEFUL INDUSTRY: The oil industry whose remarkable growth has been largely due to peacetime activities is now being called upon to serve a world again disrupted by war among its important customers.

ACTIVITY BOOMS: Right now, the most active spot in Louisiana is the Golden Meadows field, where, unless drastic spacing restrictions are imposed, a large number of wells will be drilled. More than a score of active operations are reported.

HOPE SPRINGS ETERNAL: Despite unfavorable results, a number of companies have maintained confidence in the possibilities in Mississippi and have kept up exploration. Justification for this faith seems almost assured as one company prepares to make a completion test of showings near Yazoo City.

HOPE: After considering and voting down a conservation act, the Mississippi Legislature may show a different attitude next session, with two new prospects; an oil field in Yazoo County, and a new governor.

WAR RATIONS: Nations at war which have rationed the use of petroleum by civilians may find later that petroleum products are as necessary behind the lines in maintaining supplies as they are on the war fronts.

SEPTEMBER OUTLOOK: If September state allowables are carried out the industry's crude-oil and product statistical situation should show further substantial improvement by the end of the month.

CLAY COUNTY REVIVAL: With the revival of activity in the Illinois basin area, the play has extended through Kentucky and into Tennessee. Half of the latter's Clay County is now under lease, with more than a half-dozen promising areas.

EIGHTIETH: Wars and lifting of shutdowns obscured the fact that the oil industry passed its eightieth birthday anniversary in the United States last week. It was late in August, 1859, that Drake's "folly" started the industry that now has an annual payroll of a billion and a half dollars.

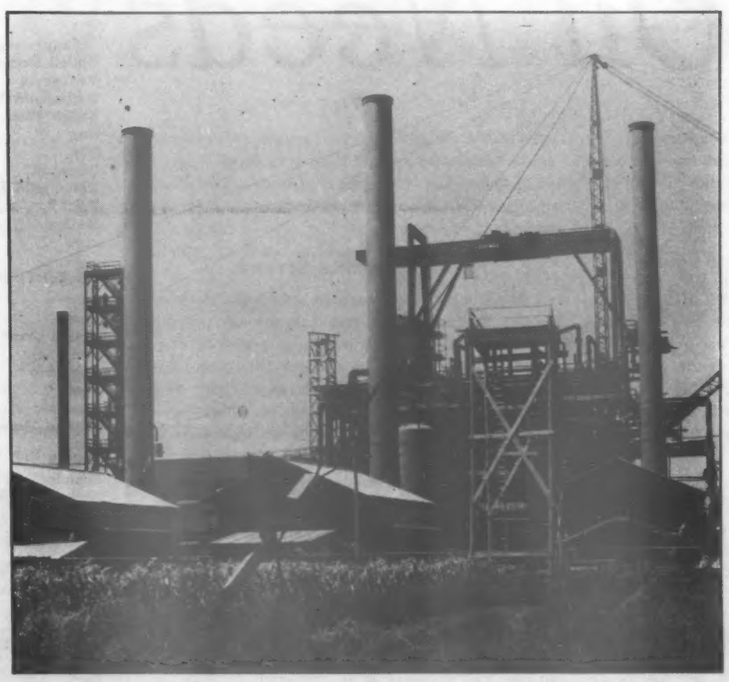
SHUTDOWN REVERBERATIONS: While at least 2 months must elapse before definite conclusions may be reached with regard to the effect of the shutdown upon the productiveness and probable life of the wells, present indications are that little permanent harm was done.

ACTIVE VILLAGE: The tiny village of Keensburg, Wabash County, Illinois, has at least 37 active drilling operations within and immediately surrounding it.

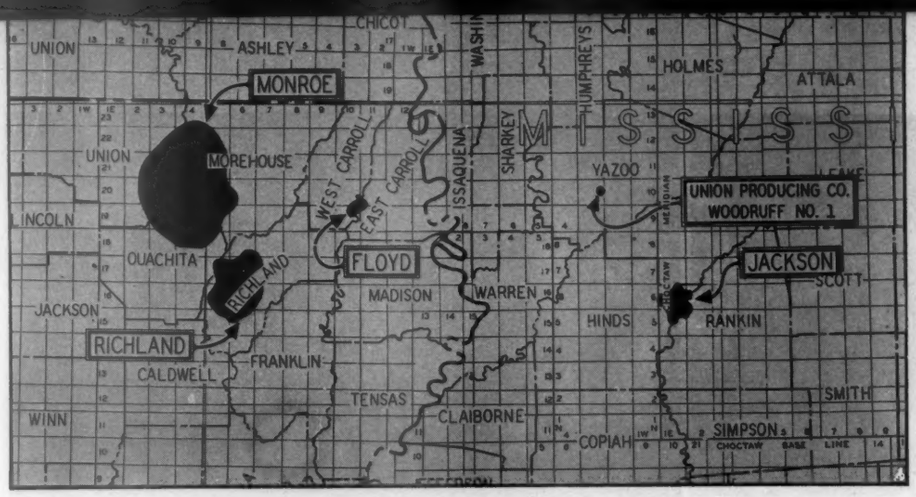
PROGRESS: To be listed among the most important news of the week is the progress reported looking toward a conservation act in Illinois this fall.

INVENTORY TREND: A reduction of 21,500,000 bbl. in crude-oil stocks during August puts inventories east of California near minimum working requirements.

CRACKING FACILITIES EXPAND . . .



Large Houdry unit nearing completion at the Augusta, Kans., refinery of Socony-Vacuum Oil Co., Inc. (White Eagle division)



Union's No. 1 Woodruff, in respect to the Jackson gas field and nearest fields of Northeast Louisiana

Mississippi Well Is Flowing Oil

By NEIL WILLIAMS

THAT commercial oil production has been found in Mississippi seems almost assured as Union Producing Co. prepared to make a completion test of significant showings encountered in its No. 1 Woodruff on the Tinsley geophysical prospect, about 10 miles southwest of Yazoo City, Yazoo County.

The well was cleaning itself Tuesday, flowing oil and wash water. Plug was drilled Monday evening and with screen and liner and tubing set, washing was started at midnight. The well was shut in for an hour between 4 and 5 o'clock Tuesday morning but since then has been flowing. Pressure, which before noon was 220 lb. on the tubing and 50 lb. on the casing, was building up steadily as the well cleaned itself, through small chokes. So far no estimates on production are available.

The well has 10 ft. of sand at 4,540-50 ft., with bottom of the hole at 4,560 ft., and 7-in. production string of casing is cemented on top of the sand for completion. In a 15-minute drill-stem test at 4,540-60 ft. August 29, 42 stands and a double (approximately 3,900 ft.) of pipe-line oil was recovered, with 48 stands and a double of pipe in the hole. As the pipe was broken down, the well started to head and continued to do so down to the last stand. The test showed a working pressure of 15 lb. with ½-in. chokes on bottom and top.

Oil recovered is 34.2° A.P.I. gravity and of an asphaltic base. In an Engler distillation run, a sample cut 20 per cent 65.8-gravity gasoline, 10 per cent 48.5-gravity naphtha, 5 per cent 43.1-gravity kerosene, and 65 per cent 23.4-gravity bottoms. No sulfur content was indicated.

Exact location of the well is C W½ Section 13-10n-3w. Besides being 10 miles southwest of Yazoo City, it is between 30 and 35 miles northwest of Jackson, the capital of the state, also the location of the Jackson gas field, which, except for some small gas production found at Amory, northeastern Mississippi, is the only production of either oil or gas in the state.

The well is only 3 miles east of the Yazoo River, a navigable stream, which flows into the Mississippi River, less than 35 miles distant. With development of production in this area, this will permit a market outlet by water route, as well as barge access to the field for movement of equipment and supplies, if desired. However, the water route was not utilized in drilling this well, equipment and supplies for which were brought in by rail and truck.

The pay zone is a quartz sand having 25 per cent porosity. No permeability report has been made. So far the age of the sand has not been determined definitely, although it is in the uppermost part of the Cretaceous. The well was spudded July 18, and 10¾-in. surface casing was cemented at 622 ft., and open hole drilled to its present total depth. At its present depth the well is in a sidetracked hole. The first hole was drilled to 4,437 ft., where it was reported in chalk. It was plugged back to 4,357 ft., from where the new hole was drilled.

Around the well Union Producing Co. has a block of between 8,000 and 10,000 acres, which is practically solid except for some small scattered acreage, mostly outlying, held by Southern Natural Gas Co., O'Brien Brothers, Barnsdall Oil Co., Magnolia Petroleum Co., Texas Co., and Travis and associates of Dallas. Magnolia and Texas also own some small scattered mineral rights, Magnolia having an interest in an offset tract to the Union well.

The block was taken by Union Producing Co. on the strength of seismograph reflection work. Also, surface evidences of structural conditions in that general area have been observed, as reported in a Mississippi Geological Survey Memorandum issued April 12, and which was referred to in an article in the August 31 issue of The Oil and Gas Journal. Quoting from the latter article is the following reference, which has to do with the Satartia structure:

"Satartia, Yazoo County, lies 15 miles south-southwest of Yazoo City and 5 miles southwest of the center of the Tinsley dome, described in the Mississippi Geological Survey Memorandum of April 12, 1939. In many places eastward and southward of Satartia, the hill slope gullies and the streams of the Bluff region expose the thin bentonite bed of the upper Yazoo clay. As early as November 1938 members of the W.P.A.-Mississippi Geological Survey Clay and Mineral Survey of Yazoo County suspected that the irregular elevations of the bentonite outcrops were due largely to structural conditions; although it was realized that slumping has taken place along the Bluff on an amazing scale. Subsequent to this date, the discovery of the Moodys Branch marl inlier near Tinsley confirmed the presence of the Tinsley dome as it was suggested by various outcrops of the Yazoo bentonite; still later, the finding of pieces of bitumen near the center of Section 6-9n-3w, seemed further to establish the basis for the belief that the Satartia region is disturbed geologically."

The Woodruff well is one of three wildcats which Union Producing Co. has drilled this year within a radius of 25 miles of Yazoo City. Each has been on a different prospect, all located on the strength of seismic exploration. One of these, No. 1 Anderson, Section 12-8n-1w, east of Flora, Madison County, and about 17 miles southeast of the Woodruff well, created considerable excitement when it cored a sand below 4,400 ft. that showed some traces of oil. The hole was then drilled to a total depth of 6,265 ft. Plugged back to the 4,400-ft. horizon where 7-in. casing was cemented at 4,479 ft., a test of the sand was made with casing perforated at 4,414-24 ft. It got only salt water, and was abandoned May 15. The other test, No. 1 Box, Section 15-14n-4w, 15 miles northwest of Yazoo City in Humphreys County, was abandoned last week as dry with bottom of hole at 5,652 ft.

Among other important tests which have been drilled in this general area are Sun Oil Co.'s No. 1 Wilson, Section 1-8n-2w, Madison County, about 15 miles southeast of the Woodruff well and about 6 miles west of Union's Anderson well, and Amerada Petroleum Corp.'s No. 1 Campbell, Section 24-12n-2w, about 3 miles northeast of Yazoo City. The former, drilled in 1937, was abandoned at 5,034 ft. in Selma chalk. Amerada's test, drilled in 1930, was abandoned at 5,198 ft.

Possibility of oil production in Mississippi has long been a subject of considerable speculation. There have been few favorable showings of oil in all the wildcatting. Three outlying wells of the Jackson gas field have produced intermittently small quantities of very heavy gravity oil along with considerable salt water from the Selma chalk; but these have not been regarded as having important significance as the structural and formational conditions of that field offered little chance for development of any additional production. A wildcat drilled near Collins, Covington County, in 1931, encountered strong pressures with a showing of wet gas and a rainbow of oil at 4,722-30 ft. in the Wilcox; another test on the Hiram prospect in Wilkinson County in 1935 cored 4 ft. of saturated sand at 2,868-71 ft. in the Cockfield; in the Quitman area, Clarke County, several years ago, another test had an oil sand at 3,692-3,700 ft. in the Eutaw, and in the Amory area of northeastern Mississippi some showings of oil have been encountered; but, for the most part, drilling has been disappointing. A general summary of these wells was given in an article in June 16, 1938, issue of The Oil and Gas Journal.

Proving up during 1937 of two salt domes in South Mississippi, one at Midway in Lamar County, and the other at Edwards in Hinds County, brought new attention to the potentialities. Throughout most of 1937, extending into 1938, an intensive geophysical play spread across the south half of the state. More than 50 areas were outlined as definite prospects and acreage around them solidly blocked. In addition, millions of acres were leased in checkerboard spreads. Although not so actively, leasing and geophysical work has continued, being featured lately by the leasing by Phillips Petroleum Co. from the state of the water bed of Mississippi Sound, where geophysical exploration is under way.

Left: A. H. Bell, left foreground, examines a specimen of the Thebes sandstone while other members of the party climb higher up the slopes to obtain samples of the Orchard Creek shale. Right: Entrance of shaft in a quarry in the Kimmswick limestone, producing formation in the Dupo oil field, provides good specimens

Missouri-Illinois Formations Are Studied by Geologists

By HARRY F. SIMONS

THE clang of steel on rock was heard in the hills of southern Illinois and Missouri last week as more than 180 geologists from 15 states attended the thirteenth annual field trip of the Kansas Geological Society. Purpose of the trip was to study the sedimentary formations and structures in the area, and it attracted a large group, due to the great interest in Illinois present oil production and future possibilities. The Illinois Geological Society, State Geological Survey of Illinois and the Missouri Geological Survey aided in planning and conducting the tour.

Leaving East St. Louis, Ill., on Wednesday, August 30, the caravan of geologists spent 5 days, traveling 755 miles and making 61 stops for the studying of the outcrops; the tour concluded Sunday evening at Rolla, Mo. Short talks on the occurrence and the significance of the outcrop were delivered at each stop before the geologists started examination and sampling of the formations. Travel of the caravan was expedited by escorts of state police.

Night meetings were held Thursday and Friday night at Cape Girardeau, Mo., to hear talks by A. H. Bell, of the Illinois Geological Survey, on "Current Oil Development in Illinois," and H. A. Buehler, Missouri state geologist, on "Mineral Deposits of Missouri." At the Wednesday luncheon stop at Fort Kaskaski M. M. Leighton, chief, Illinois Geological Survey, discussed the history of the Mississippi River and some of the causes of its physiographic features.

Route of the first day of the trip followed the eastern bluff of the Mississippi where exposures of Ordovician strata were viewed on the crest of the Valmeyer anticline, and a nearly complete succession of the Mississippian formations was seen in various outcrops. Faulting in the vicinity of Grand Tower, Ill., produced Devonian strata in contact with the Mississippian strata and could be seen emerging from beneath overlying Pennsylvanian sandstone.

The Kimmswick limestone, the producing formation in the Dupo, Illinois, oil field, was viewed in a quarry near Valmyer. The Ste. Genevieve limestone, one of the principal producing horizons of Illinois, was examined along Fountain Creek in Section 34-2s-10w. The Aux Vases sand, another important source of Illinois petroleum, was seen in a massive bluff along the highway between Prairie du Rocher and Modoc. According to J. Marvin Weller, geologist and head of the stratigraphy and paleontology division of the Illinois Geological Survey, the Aux Vases sand is not persistent throughout the basin and strata that have been correlated with it should be referred to the closing stage of the Ste. Genevieve sedimentation. The Paint Creek formation, which contains a stray oil-producing sand in the Louden, Illinois field, was studied in Section 32-5s-8w where it outcropped in a hollow. The Tar Springs, another Illinois producing sand, was shown outcropping in a ravine in the SW NW Section 30-7s-8w.

Second day of the trip was through the southern portion of Illinois beyond the south limits of glaciation where the topography is influenced by structure and character of the rocks. Loess deposits cover much of the sedimentary rock in addition to considerable amounts of residual material; and the outcrops are not as good generally as might be expected. Elevation of the Mississippi River also caused many of the tributary valleys in the area to become filled with silt and there are numerous terraces flanking the valleys.

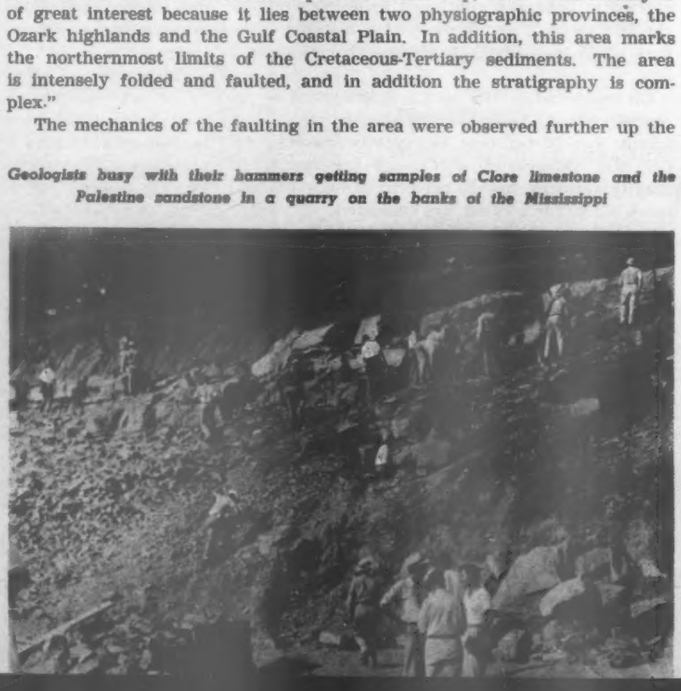
Outcrops studied on the Illinois side of the river included the Bailey limestone (Devonian); a lower Mississippian and Devonian section containing several members; Osage formation over Springville formation, the lower part of the St. Louis limestone; the Hoffner member of the Ste. Genevieve; a section containing Cypress sand, Paint Creek formation, Bethel sand and Renault formation; 145 ft. of Ste. Genevieve limestone in a quarry; Warsaw-Salem over the Osage formation; massive chert at the base of the Osage; Clear Creek chert; Bailey limestone; and a contact of the Ordovician and Silurian.

High point of the third day and of the entire tour was a voyage by barge up the Mississippi River from Commerce, Mo., to view the "Chalk Bluffs" long used by river pilots as a marker and mentioned by Mark Twain. The cliffs were recently investigated and found to be sandstones belonging to the Cretaceous and Ordovician with much folding in the latter.

Speaking on this area, H. S. McQueen, assistant state geologist of Missouri and leader of the Missouri portion of the trip, said: "This locality is of great interest because it lies between two physiographic provinces, the Ozark highlands and the Gulf Coastal Plain. In addition, this area marks the northernmost limits of the Cretaceous-Tertiary sediments. The area is intensely folded and faulted, and in addition the stratigraphy is complex."

The mechanics of the faulting in the area were observed further up the

Geologists busy with their hammers getting samples of Clore limestone and the Palestine sandstone in a quarry on the banks of the Mississippi



Above: (Top) Cape Girardeau, Mo., has some interesting outcrops inside its city limits and the party stops for a picture. The formations are Ordovician. (Center) Dr. E. O. Ulrich, dean of geologists on the trip, discusses the contact of the Bethel sandstone with the Renault limestone at one outcrop

Mississippi River at the mouth of Albright Creek where two faults are present. The Missouri Geological Survey has done much work in the area recently and Mr. McQueen proposed the name "Albright fault" for the phenomenon.

Route of the third day traversed two geologic provinces, the Paleozoic hills of the southeastern Ozark region and the northwestern flank of the Gulf embayment. Outcrops showing formations of Ordovician, Silurian, Devonian, Cretaceous and Tertiary age were seen. Dr. John R. Ball, Northwestern University, discussed the Devonian and Silurian formations. Good outcrops of the Ordovician were seen including those correlating with many of the Mid-Continent source beds. The St. Peter sandstone received lots of attention.

On Saturday morning the geologists left Cape Girardeau, their headquarters during their inspection of Illinois-Missouri area, and started for St. Louis; inspecting the outcrops en route and stopping for lunch at the Ozora mable quarries in Ste. Genevieve County. Formations observed ranged from the Arbuckle (Canadian) to the upper Mississippian (Chester) and the scope and mechanics of the faulting in the area were observed.

At a point approximately 1 mile west of St. Marys, Mo., an outcrop containing a formation correlating with the Illinois Bethel (Benoist) sandstone received a close study from the geologists now working in the Illinois basin area. Other interesting features were the occurrence of a thin sandstone stratum in the Ste. Genevieve formation and the crossing of the tips of the Dupo and Valmeyer anticlines which extend across the Mississippi River and were traversed on the first day of the trip.

The final day's route extended from St. Louis to Rolla across the east flank of the Ozark uplift, crossing at right angles the regional strike of the folds that make up this structural feature. Devonian and Silurian formations were not present in the outcrops along the route but Ozarkian, Canadian, Ordovician, Mississippian and Pennsylvanian formations were studied. The area was particularly interesting to the Mid-Continent geologists as it contained exposures showing the contact between the Pennsylvanian and Mississippian formations and the contact between the Pennsylvanian and Canadian formations. The work of ground waters in dissolving part of the lime formations in the area was seen in sink holes and caves.

The program for the field trip was arranged by the Kansas Geological Society and the recently formed Illinois Geological Society in conjunction with the two state surveys. George H. Norton, Atlantic Refining Co., Wichita, Kans., is president of the Kansas group; Thomas H. Allan, consulting geologist, is vice president, and E. Gail Carpenter, consulting geologist, is secretary-treasurer. Verner Jones, Magnolia Petroleum Co., Mattoon, Ill., heads the Illinois geologists with Melville W. Fuller, Carter Oil Co., Mattoon, serving as vice president, and Elmer W. Ellsworth, W. C. McBride, Inc., Centralia, secretary.

H. A. Buehler, state geologist of Missouri and M. M. Leighton, chief, Illinois Geological Survey, were dual directors, each having charge of the geological phase of the trip in his respective state. Leader of the party during the Illinois part of the tour was J. Marvin Weller of the Illinois Geological Survey, while H. S. McQueen served as leader for the Missouri portion of the trip. J. V. Howell, consulting geologist, Evansville, Ind., served as counsellor.

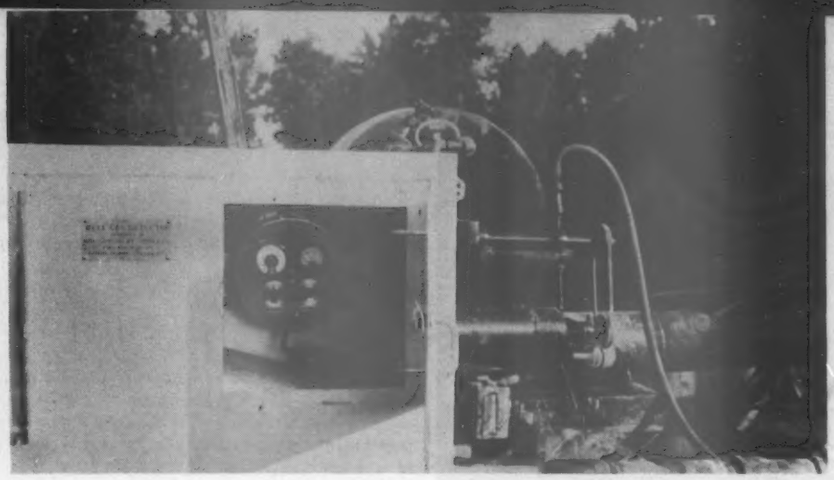
The committee on arrangements was composed of Zenas H. Stucky, Cities Service Oil Co., Wichita, Kans.; Leslie M. Clark, Shell Oil Co., Inc., Centralia, Ill.; Virgil B. Cole, Gulf Oil Corp., Wichita, Kans.; Carl L. Larson, Stanolind Oil & Gas Co., Wichita, Kans.; John W. Inkster, Shell Oil Co., Inc., Wichita, Kans., and Francis W. Mettner, Texas Co.

The field trip was designed by the leaders, who have done extensive work in their respective areas, to show as complete geological section as possible and to acquaint the geologists with the more important features of the area in the short time allotted.

A. H. Bell, in his discussion of "Current Developments in Illinois," pointed out that since the first of the year oil production has increased from 135,000 to nearly 310,000 bbl. daily with production on August 22 coming from approximately 3,846 wells. Since 1936, the basin fields have tripled their production each year with the estimated yield for 1939 being 80,000,000 bbl., according to Dr. Bell. He then briefly described the several large pools and predicted a continued increase in Illinois production, placing the peak at 350,000 bbl. before it starts to decline; discovery of a new large pool in the basin might cause the peak to be higher, Dr. Bell said.

In his talk on "Mineral Deposits of Missouri," Dr. H. A. Buehler described the area containing formations of economic significance as being bounded by the major geological features of the state. Bulk of the state's mineral wealth is of the nonmetallic variety, according to Dr. Buehler, who described the mining and quarrying processes and the use of the materials; he also described some of the geologic forces that helped in the depositing of the minerals.

Below: (Top) Officers of the two groups responsible for the field trip: E. Gail Carpenter, Verner Jones, Melville Fuller and George H. Norton. (Center) Leaders of the field trip: J. V. Howell, J. Marvin Weller, H. S. McQueen, H. A. Buehler, E. O. Ulrich and M. M. Leighton. (Bottom) Arrangements committee: John W. Inkster, Leslie M. Clark, Virgil B. Cole and Zenas E. Stucky



In the foreground is a gas detector installed on a bypass line in the mud stream from the well head. In the background is an automatic sampler which takes representative samples of cuttings, washes them and delivers them to a basket for easy checking. To the right of the basket is a sampler for mud which provides specimens for the fluoroscope for detecting oil shows

By
GEORGE
WEBER

Deepen Old Producer in North Louisiana Field

A DEEP test of considerable interest is under way in the Lisbon field of Claiborne Parish, Louisiana. In addition to the importance of the well as the first to explore the deeper possibilities in the Pettit lime field, several advanced engineering methods are being used to insure accurate geological data, and to detect the slightest show of either gas or oil.

The test is being drilled by the Lisbon Exploration Co., Inc., an association of oil operators. The well, No. 1 Roberta Vaughn, is a former producer in the Pettit-lime field, several advanced engi-drilling, and careful coring of all contacts and likely sections will extend the drilling time of this test over several weeks.

The hole is contracted to 8,500 ft. Two formations, the Travis Peak and the lower Marine, will be drilled. The drilling of this test follows a trend of deeper exploration in old shallow fields, which began with the discovery of the prolific gas, condensate and oil reserves in the Cotton Valley field.

A 4-in. drill stem is being used in the test. The 7-in. producing string, cemented at 5,313 ft., was perforated and recemented with 600 sacks of cement. Before spudding, the new equipment for checking shows and geological data was installed. A Mid-Continent fluoroscope and gas detector will be used in collaboration with time drilling and coring, and careful sample catching.

Installed in a bypass line taking mud directly from the top of the casing, the improved gas detector will be used to signal the driller at the first indication of an increase in gas content of the mud. This instrument consists of a baffle tank held under vacuum by a steam jet. The mud flows over the baffles, and any gas in solution is drawn to the surface and removed, together with air to the electrical-combustion detector. There a hot-wire filament set on a sensitive Wheatstone bridge circuit causes a film combustion, known as the skin effect, immediately around the filament. The increased temperature due to the gas combustion raises the electrical resistance of the filament, throwing the circuit out of balance, and recording the effect in the galvanometer reading and the horn signal. By varying resistance in the Wheatstone bridge circuit, the instrument can be made to detect gas increase over a wide range. This is useful in checking the walling action of mud after gas horizons have been drilled, since the operator can, by means of successive settings, determine whether the gas content in the mud is increasing, remaining constant or decreasing. On the Lisbon test, the detector will be set for showing a gas content of 2 per cent by volume, or more.

Instrumental-Depth Determination

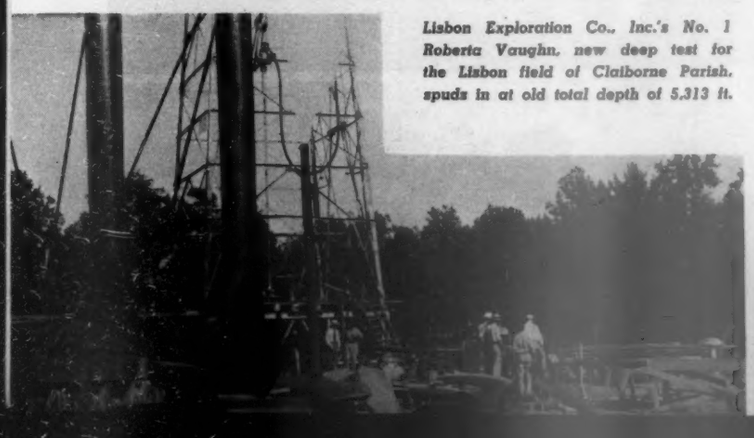
Determining the depth of a gas sand detected by this instrument requires calculation of mud displacement in the hole, pump speed and drilling time. In addition, time drilling will be used as a check, in detecting geological contacts and variations in formation hardness.

A continuous record of cuttings will be kept. Representative samples of cuttings will be taken in a sampler which consists of a vertical bucket wheel rotating in the mud stream. Cuttings are removed from the mud line, washed in a rotating screen and fed to a sample box.

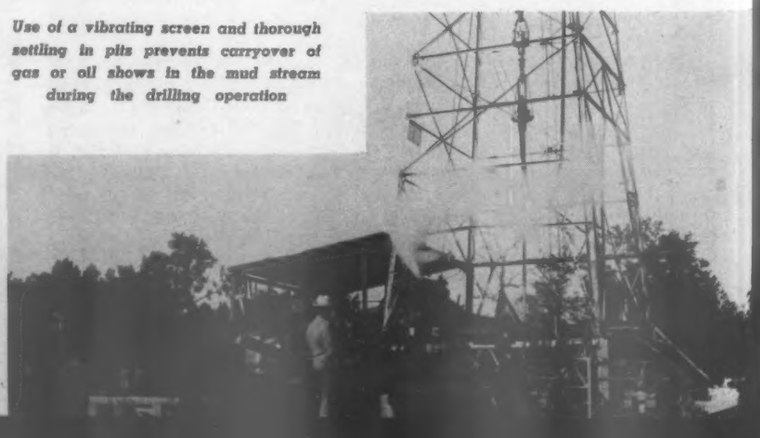
The taking of unwashed mud samples is also provided in the mud line ahead of the vibrating screen. These samples are studied in the Mid-Continent fluoroscope for indications of oil. Oil fractions as small as one part in a million can be detected, and with experience the operator can grade oil content on an arbitrary basis of content. Fuel oil and grease give off a bluish-white cast in comparison to the yellowish cast of live oil, thus preventing false oil indications from contamination. Carryover of gas or oil in the mud is precluded by use of a vibrating screen, ample settling in pits, and subsurface takeoff to the mud pumps.

Coring will be practiced whenever indications in either instrument show the possibility of gas or oil formations. Racks have been built into the core house for keeping cores in the order of depth and for easy inspection.

The importance of this deep test, and the wide participation of independent and major operators in its drilling is responsible for the measures being taken to assure a thorough examination of all formations penetrated. The Lisbon field, once the center of drilling activity in North Louisiana, has declined in importance during the past year, due to a drop in reservoir pressure, and successive cuts in field allowable and posted price for the crude. The formation of the Lisbon Exploration Co. for the sole purpose of drilling the test, was backed by practically all independent operators in the field, and stock subscriptions were made by citizens of six towns in the vicinity of the field. Bottom-hole letters have been received from four major oil companies interested in the test. J. D. Carruthers, an independent operator, is president of the specially formed company, Floyd James of T. L. James is vice president and S. N. Evans of Oden & Evans is secretary-treasurer. Paul D. Torrey, geologist with Sloan & Zook, is in charge of the geological work on the test.



Lisbon Exploration Co., Inc.'s No. 1 Roberta Vaughn, new deep test for the Lisbon field of Claiborne Parish, spuds in at old total depth of 5,313 ft.



Use of a vibrating screen and thorough settling in pits prevents carryover of gas or oil shows in the mud stream during the drilling operation

New Pays Prolific as Revival Continues in Creek County

By DAL DALRYMPLE

OKLAHOMA operators who have remained at home, immune to the lure of greener pastures in other states, have been meeting with considerable success in their own backyard. Confident there is much oil yet to be found in the Sooner State, they have been giving erstwhile boom areas a careful going-over. Their success is revealed by results in the old St. Louis district of Pottawatomie County, the older Cement field of Caddo County and the still older pools of Creek County. The original fields have been extended, additional pay sands explored, new productive areas discovered.

Developments of the last 2 years in Creek County are impressive when viewed against the background provided by that county's outstanding record.

Active development in the county began in 1906, following discovery of Glenn pool late in 1905. During that first year of intensive drilling, about 110 wells were completed and one of Oklahoma's earlier and more spectacular booms was in full swing. Glenn pool reached its peak in October 1907, when 2,441,662 bbl. of oil was produced in the month.

A bigger and greater oil-producing area was found in the county in 1912 with the opening of the Cushing field. Oil history was made, productive records broken during the wild, hectic days that followed with development of the Drumright, Oilton and Shamrock sectors of the Cushing field. By the end of 1919 this great pool, with an area of 32 square miles, had produced about 236,000,000 bbl. of oil which was about 3 per cent of all the oil produced in the world at that time.

The Bristow-Slick area was the next major Creek County field to be developed. Oil first was found at Slick in 1913, but principal development came in 1919-20 after Dutcher-sand production had been found. The Bristow area was opened in 1916 and the Continental pool, included in the Bristow district, was discovered in 1918, the more intensive development getting under way in 1920 with discovery of deeper pay sands.

High Productive Rate

Total production of these Creek County fields to January 1, 1939, was as follows:

Field—	Total yield	Acreage	Av. prod. per acre	Present daily prod.
Cushing	347,575,502	21,850	15,910	9,700
Glenn pool	219,982,444	19,050	11,550	4,000
Bristow-Slick	157,610,770	25,175	6,260	6,700

In addition to these major productive areas, many smaller pools were opened and development has continued through the years. However, activity waned with the decline of the principal fields in the county and discoveries of flush pools elsewhere in Oklahoma and other states, to the point where only a few routine operations were being carried on.

It looked like Creek County was washed up. It had a glorious oil history behind it, but they don't cash in on history in the petroleum industry. Many wildcatters and other operators moved on to Seminole, to Oklahoma City, to Texas, to Illinois, to other states, seeking the quick returns that come with big initial yields and rapid development.

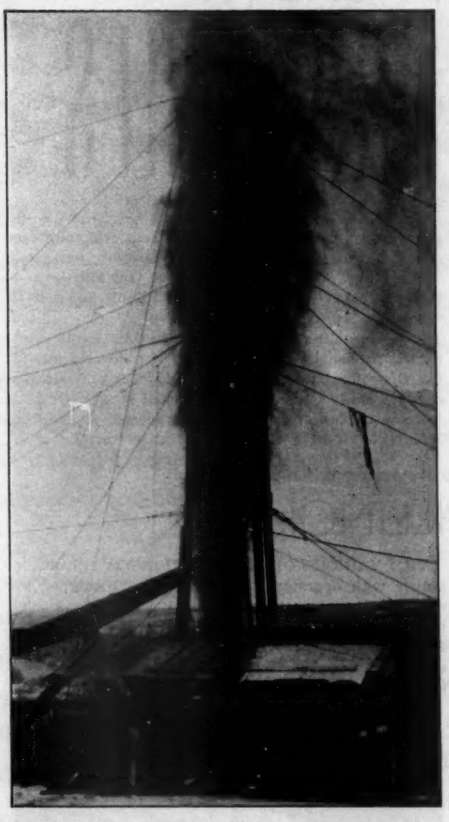
Even so, there were those who believed Creek County still offered possibilities for future exploration. They remained behind and continued the search for new reserves in that old county. They were content with small initials, for they knew Creek County sands had long productive lives and that ultimate recovery per acre would be large. They knew the geology of the area, had logs of thousands of wells to guide them, and were confident much oil remained under Creek County soil.

They were successful to such an extent that there has been considerable revival of drilling in Creek County in the last 2 years. Several small pools overlooked in the excitement of the boom days have been opened and some of the older areas have been extended. Old wells in the Drumright-Shamrock area have been reworked, plugged back or deepened to new pay zones, with some degree of success. This, too, has occurred in the Bristow district and down around Kiefer in the Glenn pool area.

Most Active County

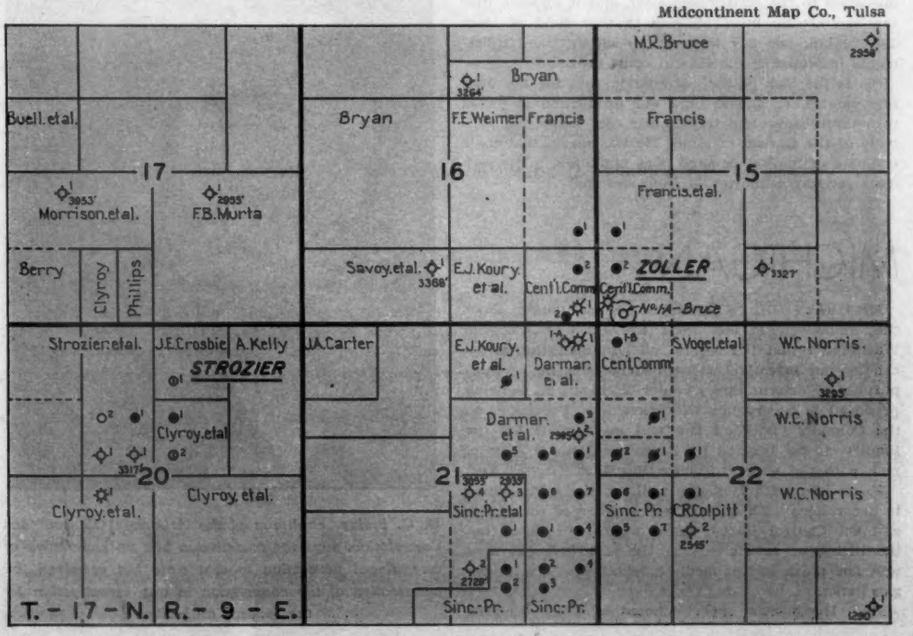
So, today, Creek County has more drilling activity than in any other county in Oklahoma. It paced the state last week with a total of 50 operations, including 43 rigs or drilling wells, 7 first reports, and 4 completions. Not bad for a county that dates its oil discovery to 1906.

(Continued on Page 90)



Left: Well in the new Zoller pool flowing over the rig after a shot. Below: The Strozier and Zoller pools, west and north of the old Walker pool, typical of the new areas being opened in Creek County

Midcontinent Map Co., Tulsa



STATE CAPITALS

TEXAS

HOLDERS OF LEASES ON UNIVERSITY LANDS issued under statutes in effect prior to the 1925 University Lands Leasing Act are liable for a $2-per-acre cash payment and a $2-per-acre annual payment from the dates of issuance of the leases, Atty. Gen. Gerald C. Mann ruled in an opinion last week. The opinion held that the lessees of such land are bound by the provisions of the 1917 act to make the $2-per-acre payments, and that acts of the 1921 and 1925 legislatures, which attempted to relieve such payments, violated certain sections of the state constitution. (Sections 12 and 15 of Article 7 prohibit the legislature from granting relief to the purchasers of university lands.) Effect of the ruling is to make lessees of 150,000 acres under the act of 1917 owe the state about $3,000,000, as the opinion affects all oil and gas leases upon university lands issued under the permit and lease system provided by act of 1917, which act continued in effect until 1925.

The attorney general further held that the 1921 and 1925 statutes, if construed to relieve lessees, violated other provisions of the constitution, which prohibit the legislature from releasing or extinguishing the liability of any corporation or individual. The opinion stated that the courts have held that the issuance of oil and gas permits or leases constitutes sale of university lands, and that an attempt of the legislature to release the contractural obligations of the purchasers of such land to pay the $2-per-acre annual amounts stipulated in the 1917 act, constitutes an attempt to release the purchasers of university lands from their obligations, which is prohibited by the above cited provisions of the constitution.

THE EAST TEXAS FEDERAL TENDER BOARD, upon direction of federal Judge Randolph Bryant, last Thursday approved tenders for 91,135 bbl. of oil produced by Humble Oil & Refining Co. The board previously denied approval of tenders for the oil, which included a 44-per cent increased allowable as authorized by the three-judge federal court at San Antonio, observing that the federal court order failed to show "on its face that it applies to the Federal Tender Board or that the federal board was a party to the suit," and that the oil "is or would be contraband within the meaning of the Connally Act."

NEXT STATE-WIDE PRORATION HEARING has been called by the Railroad Commission for September 11, at which time the commission will explain its proposed solution and proposed order for the East Texas field. A statement issued in conjunction with the order for the September hearing said in part:

"As the industry knows, the commission is faced with federal court injunctions with regard to certain operators in the East Texas field, and it appears that the commission must allocate to that field at least 488,000 bbl. per day in order to satisfy the requirements indicated in the federal court decisions.

"It is the idea of the commission that for the next few months we should limit our production in Texas to a figure approximately 15 per cent below the estimate of the Bureau of Mines for the reason that their estimate of market demand does not allow in its estimate for any withdrawals from storage."

MICHIGAN

MICHIGAN OIL INTERESTS are speculating about the announcement last week by Secretary Ickes in Washington that the federal oil administration is arranging an investigation at Lansing for the avowed purpose of determining whether Michigan oil is being produced in accordance with state law. Provisions of the Connally "hot" oil law will be invoked for the inquiry, to be directed by Examiner John I. Watson, now with the Federal Tender Board at Kilgore, Tex.

Meanwhile, with Michigan wells partially shut down in accordance with an emergency order of the Michigan Oil Control Board, there were indications that the lifting of restrictions in the Mid-Continent area will not mean any immediate relaxing of the Michigan limits.

P. J. Hoffmaster, superintendent of wells, declared Michigan limitations are not closely related to the Mid-Continent restrictions. He said he believes conditions have not changed sufficiently to permit lifting of the allowable limits and hinted that increasing well drilling may result in additional restrictions if production totals continue to climb. Mr. Hoffmaster is of the opinion that production from new wells will take care of any increased demand for the immediate present.

The "hot" oil allegedly dumped in Michigan is thought to have been produced in Illinois and sold at "depressed" prices.

As a result the Department of the Interior is establishing at Lansing a suboffice of the Federal Tender Board, which enforces the Connolly "hot" oil act. Recently a similar suboffice was opened at New Orleans, and supervisors of the board are reported as checking reports of possible violations in other states.

ILLINOIS

THE VARIOUS OIL ASSOCIATIONS in Illinois, together with operators not affiliated with any of the associations, are now agreed that the time has arrived for Illinois to have an oil-conservation law. The conflict comes when the question of what kind of a bill should be passed is discussed. The situation is treated at length in an article elsewhere in this edition.

O. C. Bailey, chairman of the Arkansas Oil and Gas Commission, says the commission has no knowledge of any illegal production in that state but promised the cooperation of the commission in any investigation by the federal authorities

OKLAHOMA

SEPTEMBER ALLOWABLE PRODUCTION in Oklahoma was reduced to 384,950 bbl. per day by the Oklahoma Corporation Commission at its meeting last week.. The new allowable is 43,050 bbl. per day below the August allowable of 428,000 bbl. per day

ARKANSAS

CHARGES THAT "HOT" OIL from South Arkansas fields has been moved into Texas and Louisiana will be presented before the Oil Tender Board at Kilgore, Tex., for further investigation, U. S. Attorney Harvey G. Fields, of Shreveport, said on Saturday.

Fields last week advised Chairman O. C. Bailey, of the Arkansas Oil and Gas Commission that information had come to him concerning crude production in excess of state allowables. Crude so produced and moved in interstate commerce is popularly known as "hot" oil. The attorney particularly mentioned Schuler field in his original communication.

Mr. Bailey replied that his commission had no information on such illegal production or movement, emphasized efforts to enforce the allowables and pledged cooperation of the commission in an investigation.

Mr. Fields said Columbia County citizens had made charges that "hot" oil had been run from the Magnolia field and that these persons offered to produce competent witnesses to the operations.

LOUISIANA

ERNEST S. CLEMENTS, conservation commissioner, announced the appointment of Cyril K. Moresi, state geologist, Louisiana Geological Survey, as temporary manager of the Monroe offices recently.

A new practice in issuing drilling permits has been put into effect by David B. McConnell, director of the Minerals Division, which is expected to result in more effective control over drilling. All applications for drilling, reworking, sidetracking, acidizing or other work must be submitted first to division offices at Shreveport, New Orleans, Monroe, Lake Charles and Lafayette, where the division engineers will pass on the respective applications before they are passed on to the main office for approval. In the past, applications have been made direct to the main offices at New Orleans. The new practice will delay issuance of permits only one day additional.

NEW MEXICO

CONSERVATION AUTHORITIES IN NEW MEXICO lowered the allowable production in September in that state to 100,000 bbl. a day or 13,100 bbl. per day below the August allowable.

KANSAS

ALLOWABLE PRODUCTION IN KANSAS was reduced to 147,705 bbl. per day in September by the Kansas Corporation Commission, or 16,295 bbl. per day below the August allowable of 164,000 bbl.

CALIFORNIA

SPONSORS OF THE REFERENDUM against the Atkinson oil control bill are maintaining a discreet silence but a check indicates that approximately 200,000 signatures have been secured. This is of special interest because if the Atkinson oil control measure goes into effect state officials may find it advisable to severely reduce crude-oil production, especially in flush fields. Japanese shipments have been very irregular but if this market is lost to California petroleum it will mean that crude-oil production must be cut at least 70,000 bbl. per day.

The OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Oil Preparedness

The petroleum industry is once more called upon to adjust its operations to a situation which finds several of its major customers at war.

It becomes daily more apparent that oil will be required in every phase of war operations, from the supporting activities of civilians to the movement of war machinery along the front lines and on the high seas.

As to the needs of a world disrupted by war there should be no hasty conclusions. Time will be required to determine just what the nations at war will require and how developments will effect consumption in neutral countries.

The war machinery actively engaged in combat unquestionably will require more petroleum than when it was in the preparedness stage. Possible offset to this increase may lie in the curtailment of normal consumption by civilians not engaged in war, which has been announced by all the belligerents. Where America had gasolineless Sundays in the last war Europe is having gasolineless restrictions for the duration of the war.

Temporarily, at least, there will be interruption of world trade and travel, carried on largely by oil-powered boats.

A great deal will depend upon the final neutrality position taken by this country, the second largest supplier of petroleum products in world markets outside its own borders.

The same situation applies to other oil-producing countries, a half dozen largest of which furnish the bulk of the petroleum supply for the entire world, including the countries at war.

Interruption, partly or wholly, of the movement of petroleum from three or four important producing countries, possible if the war is extended, would throw the burden of supplying demand on the remaining countries.

Comparing the ability of the United States to supply oil today with its capacity in 1917, it has been pointed out that our crude-oil reserves have been multiplied by three; that we have nearly twice the number of producing wells, four times the annual production of crude oil, eight times the production of gasoline, double the production of lubricating oil, and three times the production of fuel oil that we had during the World War.

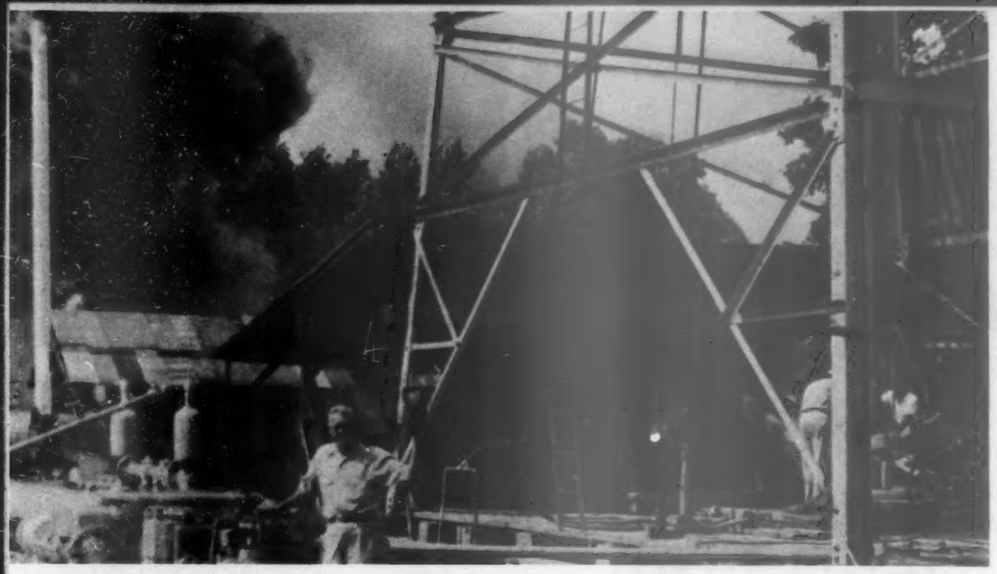
We have twice the number of refineries and four times the refining capacity while the yield of gasoline per barrel of crude has been doubled. The capacity of American tankers has been enlarged 19 times. Quality of all products has been greatly improved.

If Italy remains neutral, the British and French are assured of ready access to the Near and Far East supplies, in addition to the United States and South America. Germany, no doubt, expects to obtain oil from Russia. If the war spreads it will presumably aim for the limited Hungarian supply and the larger resources of Rumania.

It is well to keep in mind that petroleum is not in any sense a war material. Since the last World War was closed, consumption of petroleum has increased four times, largely accounted for by the peaceful pursuits of mankind.

As standards of living have advanced among civilized peoples they have found more uses for petroleum to the point where, in most countries, the actual requirements for the military services are but a small proportion of the total consumption.

Oil may be as indispensable in war as in peace but the oil industry would prefer to sacrifice any temporary gain from war demand for the much larger permanent benefit of expanding consumption in a peaceful world.



Clay County is receiving considerable attention from petroleum geologists, as is indicated in this article, which is a general discussion of stratigraphic and structural geology of the county, especially as it affects the possible accumulation of oil and gas. The discussion also reviews the past oil and gas development of the area, and serves as a guide for future prospecting. The ar-

Half of Clay County, Ten
Under Lease as Interest

FORTY years before Colonel Drake completed his famous well near Titusville, Pa., Martin Beatty found oil in a hole drilled for salt water in McCreary County, Kentucky, on the banks of the South Fork of the Cumberland River. In 1820 another well was completed on Wolf River near the Clay-Pickett county line in Tennessee which is reported to have furnished sufficient oil to cover the river and, when set on fire, produced a "terrible conflagration." Those discoveries caused sporadic drilling in the upper Cumberland district until the Civil War. After the war a number of wildcats were drilled in Jackson, Clay, Overton, Pickett and Fentress counties, Tennessee and in the southern part of Kentucky.

This exploratory work resulted in the discovery of oil at relatively shallow depths in the Ordovician at Superior in southeastern Pickett County in 1892. In August 1923, the first commercial well in Clay County was completed by A. A. Alexander and others on the E. D. Marcum lease immediately north of Willow Grove in the east-central part of the county. Since that time 15 oil pools have been opened in Clay County but seven of them have since been abandoned.

With the revival of activity in the Illinois basin area the "play" has extended through Kentucky and into Tennessee. About one-half of Clay County is under lease and according to Bulletin 47 prepared by the state Division of Geology and now being printed there are at least seven promising areas in eastern Clay County with several good structural features in western Clay County, west of the Cumberland River.

A number of wells were drilled more than 15 years ago in Clay County and over one-half of them are more than 10 years old. This publication is the first attempt to compile data on the oil and gas developments and since there is no law in Tennessee requiring drilling permits and the filing of logs and production figures, it has been difficult to obtain accurate information on many of the older tests. Regardless of these difficulties the bulletin is a very valuable contribution to the literature of the area and is also timely.

Physiography

Tennessee, because of its extreme east-west extension, crosses three major physiographic provinces and, consequently, presents a variety of land forms. Extending from the Great Smokies westward to the Mississippi River, the state includes eight well-defined physiographic divisions, most of which extend unchanged into states north and south. These physiographic units conform remarkably well to the geologic structure of the underlying rocks; thus, the plains and plateaus have been developed on areas of essentially horizontal rocks and the highly folded and faulted strata have given rise to the mountainous areas of eastern Tennessee.

The most conspicuous topographic feature of middle Tennessee is an oval-shaped depression, ranging from 500 to 700 ft. above sea level, whose major diameter trends N. 30° E. through Rutherford County, the approximate geographic center of the state, and which has been known for many years as the Central or Nashville basin. This unit comprises some 5,000 square miles and is extremely irregular in outline. The basin is entirely surrounded by the Highland Rim escarpment, some 400 or more feet higher than the basin floor.

Within the basin proper two geomorphically distinct units may be recognized. These areas have been termed the "inner basin" and the "outer basin." This distinction is lithologic, topographic and stratigraphic.

The inner basin centers in Rutherford County near the apex of the Nashville dome, and covers considerable area in DeKalb, Wilson, Williamson, Maury, Marshall and Bedford counties. Topographically, this area represents that part of the Central basin in which base leveling was most highly perfected; the relief is small. The outcropping rocks are dense to fine-grained, light to medium-gray limestones of the Lower Ordovician Stone River and Black River groups.

The outer basin surrounds the inner basin at a somewhat higher elevation. The medium to coarse-grained dark-gray limestones and shales of the Middle and Upper Ordovician are widely distributed within the unit. It is in this area that the large Highland Rim remnants occur, and it is this part of the basin which is projected as long, ramifying figures in the upper Cumberland district.

Highland Rim

Completely surrounding the Central basin is the Highland Rim Plateau region, a slightly undulating plain, whose eastern boundary is the foot of the Cumberland Plateau, and whose western terminus is the high ridges overlooking the western valley of Tennessee River. It is the largest physiographic division in the state, with an area of nearly 11,000 square miles. In Tennessee the plateau reaches a maximum elevation of nearly 1,400 ft. near the southwestern corner of Rutherford County, with an average altitude of slightly less than 1,000 ft. The rim region throughout is capped by limestone, shales, and cherts of Mississippian age. The Highland Rim province in Tennessee is subdivided according to its relation to the Central basin into the eastern, northern and western Highland Rims.

Clay County is a part of the greatly dissected Highland Rim physiographic division near the boundary of the northern and eastern Highland Rim units. With the exception of a small area in the northwestern part, the entire country lies within the drainage of Cumberland River, which traverses the area in a general north-south direction and swings in entrenched meanders 400 to 600 ft. below the general Highland Rim level. The larger tributaries, especially Obey River, are also deeply incised and have meandering courses.

Geography

Clay County was erected in December 1870, from nearly equal parts of Jackson and Overton counties. The county was named in honor of Henry Clay. Celina was selected as county seat over Butlers Landing and Bennetts Ferry and has remained the center of county government

ticle contains high points from a new bulletin entitled "Geology and Petroleum Resources of Clay County, Tennessee," which was written by Kendall E. Born, assistant geologist, and H. B. Burwell, geologic aide. Walter F. Pond, state geologist, had general supervision of the work. Copies of the bulletin are available from the Tennessee Department of Conservation, Nashville, Tenn.

n nessee, t Spurts

and activities. The county now comprises four civil districts.

In 1930 the population was 9,577 with a density of 37.7 persons per square mile. Celina, with a population of 756, is the largest and only incorporated town. It is located on the east bank of the Cumberland River near the geographical center of the county. It is the most important trading center and has good stores, schools, a bank and a hotel.

Industry

Clay County is almost wholly agricultural, 7,657 persons of the 1930 population of 9,577 living on farms. In 1930, nearly 83 per cent of the total land was in farms with the average farm consisting of 92.4 acres. The value of farm lands and buildings totals over $3,000,000.

The soils and climate of the county would support a widely diversified agriculture, but the lack of good transportation facilities in the past has retarded expansion.

There are no railroads in Clay County, a condition which has retarded the development of the county's resources to a large extent. The closest railroad shipping points are on the Tennessee Central Railroad at Algood or Double Springs in Putnam County, both of which are about 36 miles from Celina.

Excellently maintained state highways cross the county. Graveled Highway 53 offers transportation from Gainesboro north through Butlers Landing to Celina, and thence east through Willow Grove, joining with Highway 42 near Byrdstown in Pickett County. Highway 52 from Livingston crosses the county and passes through Celina, with which it connects Red Boiling Springs. This highway is paved, with the exception of the stretch between the junction with Highway 51 and Red Boiling Springs. A few miles west of Moss, Highway 51 joins 52 and provides a good road to Tompkinsville, Ky., and other points to the north and northwest. There is a bridge across the Cumberland at Celina.

In addition to the state highways most parts of the county are reached by gravel and dirt roads, which range in conditions from well-maintained highways to roads practically impassable for automobiles.

This section of Tennessee has a rather mild climate. The summers are moderate, with occasional hot periods during which the temperature reaches between 90° and 100° F. Usually the winters are short and mild, accompanied by light snows, few of which remain on the ground for more than a week.

Stratigraphy

The rocks outcropping in Clay County as well as those penetrated by the drill are all of sedimentary origin. Rocks, ranging in age from the upper part of the Knox dolomite group of the Lower Ordovician (Canadian) to Recent, are definitely known to occur in Clay County. The Canadian, Stones River, Black River, and lower Trenton formations do not outcrop anywhere in the county, but they have been studied and correlated by microscopic examinations of well samples.

The oldest outcropping formation is probably the Cannon limestone of Trenton age, which is believed to outcrop during low water of Cumberland River just west of Tinsleys Bottom along the Clay-Jackson county line. The Cannon, Catheys, Leipers and locally a formation of Richmond age, represents the Ordovician system. At least 180 ft. of strata are exposed below the base of the Chattanooga shale in Clay County. These formations consist essentially of thin and thick-bedded gray, dense to coarse-grained limestone with many calcareous shale beds. They are widely distributed in the valleys of Cumberland River and its tributaries.

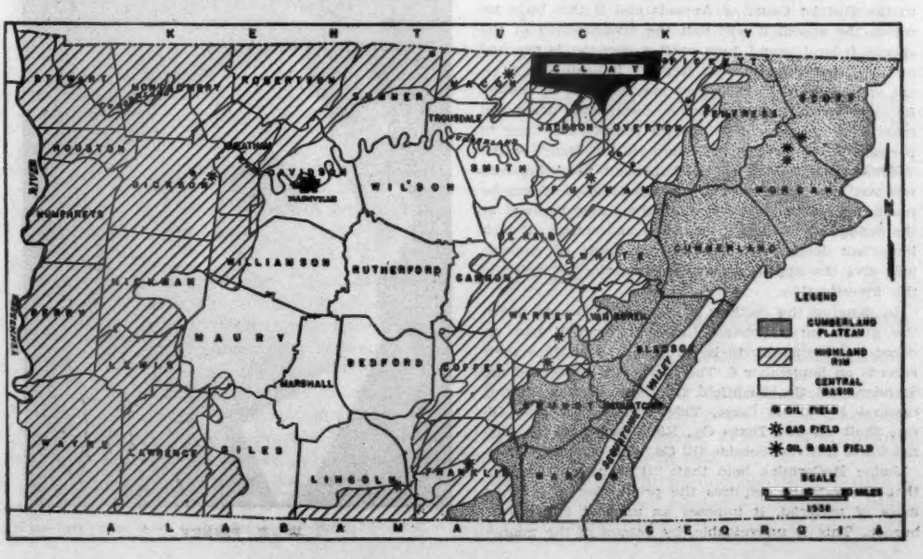
The Ordovician is succeeded by the widespread Chattanooga black shale. Rocks of Silurian and Devonian ages are absent and the Ordovician-Mississippian contact is the most pronounced plane of unconformity in the upper Cumberland district. The Mississippian system of rocks is well represented in Clay County. The distinctive Chattanooga shale is succeeded invariably by approximately 200 ft. of siliceous and cherty limestone, shale, and siltstone. This entire unit is assigned to the Fort Payne formation. The Warsaw and St. Louis limestones of the middle Mississippian overlie the Fort Payne and form the surface rock of the Highland Rim Plateau over a considerable part of the county. The higher uplands are surfaced with the Fredonia (Ste. Genevieve) and Gasper oolites (Monte Sana group) and the youngest consolidated formation in the Cypress sandstone of lower Chester age. These formations are restricted to the higher knobs in the area north and northeast of Celina.

The youngest rocks exposed in Clay County are the terrace gravels, probably of Tertiary age, and the alluvium of the present-day streams.

The bulletin devotes about 37 pages to a detailed discussion of the rocks of the area quoting largely from E. O. Ulrich on the Canadian system and from other geological reports on "St. Peter"

(Continued on Page 78)

SYSTEM	SERIES	FORMATION	COLUMNAR SECTION	THICK	CHARACTER OF ROCKS	DISTRIBUTION IN CLAY COUNTY
MISSISSIPPIAN	UPPER (CHESTER)	CYPRESS SANDSTONE		20'	WHITE TO BROWN, COARSE SANDSTONE.	CAPPING HIGHEST HILLS NORTHEAST OF CELINA.
		GASPER OOLITE		150'	LIGHT GRAY, USUALLY PURE OOLITIC LIMESTONE WITH BONE DARKER GRAY FINE-TO MEDIUM-GRAINED LIMESTONE. SHALE LOCALLY PRESENT NEAR THE BASE.	CAPPING HIGHER HILLS AND UPLANDS NORTHEAST OF CELINA. WELL EXPOSED IN THE VICINITY OF PILOT KNOB AND ALONG PEA RIDGE ALSO EXPOSED ON CHIMNEY HILL IN SOUTH-CENTRAL PART
	MIDDLE (MENARMEC)	FREDONIA OOLITE		150'	GRAY TO BLUE-GRAY OOLITIC LIMESTONE WITH CONSIDERABLE AMOUNT OF DARK MEDIUM-GRAINED LIMESTONE. GENERAL LITHOLOGY VERY SIMILAR TO OVERLYING GASPER OOLITE.	PRACTICALLY THE SAME AS THE OVERLYING GASPER OOLITE.
		ST. LOUIS LIMESTONE		140'	DARK BLUE TO BLUE-GRAY, FINE TO MEDIUM-GRAINED LIMESTONE. CHERT COMMONLY PRESENT. SHALE LOCALLY DEVELOPED ESPECIALLY NEAR THE BASE.	SURFACE FORMATION OVER MOST OF INTERSTREAM DIVIDES IN EASTERN HALF. SMALL AREA OF RESIDUAL ST. LOUIS PRESENT CAPPING HIGHEST HILLS IN WESTERN PART IN THE VICINITY OF MOSS.
		WARSAW FORMATION		60'	GRAY TO BLUE, GRANULAR LIMESTONE WITH BONE GRAY SHALE. THIN, MASSIVE SANDSTONE (BARRETTS MILL) DEVELOPED AT TOP IN EASTERN PART.	WIDESPREAD IN EASTERN PART OCCUPYING UPPER PARTS OF VALLEYS BELOW THE ST. LOUIS. CAPS GENERAL UPLAND IN VICINITY OF MOSS.
	LOWER	FT. PAYNE FORMATION		230'	LITHOLOGY VARIABLE. DARK GRAY, FINE-TO MEDIUM-GRAINED, SILICEOUS AND CHERTY LIMESTONE. BLUE-GRAY, SILICEOUS SHALE AND GRAY CRINOIDAL LIMESTONE (NEW PROVIDENCE). BLUE-GREEN SILICEOUS SHALE (RIDGETOP). GREEN PHOSPHATIC SHALE PRESENT AT BASE (MAURY) GREEN SHALE.	MOST WIDELY EXPOSED FORMATION IN COUNTY FORMS MAJOR PART OF VALLEYS IN EASTERN PART AND OCCUPIES MOST OF THE GENERAL UPLAND, AND HEADS OF VALLEYS WEST OF CUMBERLAND RIVER.
	CHATTANOOGA SHALE			50'	BLACK, CARBONACEOUS FISSILE SHALE WITH OCCASIONAL AT BASE	INVARIABLY PRESENT IMMEDIATELY BELOW FT. PAYNE FORMATION
ORDOVICIAN	CINCINNATIAN	RICHMOND		200'	GRAY LIMESTONE WITH MUCH CHERT	RESTRICTED AREA WEST OF CELINA.
		LEIPERS FORMATION		100'	GRAY-BLUE, NODULAR, ARGILLACEOUS LIMESTONE WITH INTERBEDDED GRAY SHALE. LIMESTONE USUALLY THIN-BEDDED.	WELL DEVELOPED ALONG CUMBERLAND, OBEY AND THEIR MAIN TRIBUTARIES THROUGHOUT THE COUNTY. MOST WIDESPREAD ORDOVICIAN FORMATION.
	MOHAWKIAN	CATHEYS FORMATION		80'	GRAY-BLUE, IMPURE, USUALLY EVEN-BEDDED, FINE-TO MEDIUM-GRAINED LIMESTONE WITH GRAY SHALE BEDS.	LIMITED TO VALLEYS OF THE CUMBERLAND AND ITS IMMEDIATE TRIBUTARIES NORTH AND SOUTH OF CELINA



Left: Columnar stratigraphic section of rocks exposed in Clay County. Below: Sketch map of middle Tennessee showing the location of Clay County in relation to past and present producing areas in the state

Opposite page: Henderson Oil Co.'s No. 1 Field, 13 miles west of Dyersburg, Dyer County, Tennessee, drilling ahead toward Tuscaloosa formation. G. L. Morton, drilling superintendent, shown in foreground

Chronology of the Shutdown

Due to the confusion existing concerning dates of changes, the following important developments in the industry during recent weeks are listed in chronological order:

June 12.—Federal Judge R. J. McMillan, at San Antonio, Tex., granted Rowan & Nichols an injunction against the Railroad Commission's allowable restriction in East Texas, in effect doubling their allowable.

August 9.—Three-judge federal court at Austin, Tex., granted injunction to Humble Oil & Refining Co., compelling Railroad Commission to increase company's allowable in East Texas on same basis as in Rowan & Nichols decision.

August 10.—Sinclair Prairie Oil Marketing Co. reduced its prices in Oklahoma, Kansas, Texas, and New Mexico 20 cents per barrel. Humble Oil & Refining Co. filed with Texas Railroad Commission suggested method of prorating East Texas on acre-feet of oil sand.

August 11.—Skelly Oil Co. met Sinclair in Kansas on higher grades. Cities Service Oil Co. posted 20-cent reductions, as did Bell Oil & Gas Co., Ben Franklin Refining Co., and Bell General Pipe Line Co. Derby Oil & Refining Co. announced reductions in Kansas only, as did Kanotex Refining Co. and El Dorado Refining Co. Champlin posted reductions in Oklahoma only. Humble Oil & Refining Co. revised its scheduled downward, as did Shell Oil Co., Inc., Tide Water Associated Oil Co., and De Soto Crude Oil Purchasing Co.

August 12.—Stanolind Oil Purchasing Co. posted East Texas at 90 cents.

August 14.—Standard Oil Co. of Louisiana announced reduced prices, as did Arkansas Fuel Oil Co. and Lion Oil Refining Co.

August 15.—Texas Railroad Commission made effective 15-day shutdown. Oklahoma and Kansas followed suit.

August 16.—Sohio Corp. reduced prices 20 cents per barrel in Illinois.

August 17.—New Mexico and Arkansas ordered shutdown. Louisiana and Michigan announced reduced allowables.

August 18.—Sinclair Prairie announced it would discontinue posting prices. Bell Oil & Gas Co. restored its prices, as did Danciger Oil Refineries. Caddo Crude Oil Purchasing Co. reduced Shreveport crude to 85 cents, effective August 14. Humble issued statement of reasons for reduction, stating 668,000 bbl. was being sold under posted price of August 11.

August 22.—Arkansas court upheld shutdown in case of Lion Oil Refining Co. Some 243 wells were closed, the strippers being exempted.

August 28.—Texas Railroad Commission extended shutdown two days, to 7 a.m. September 1. Humble Oil & Refining Co. rescinded its reductions retroactive to August 11. Railroad Commissioners Smith and Sadler rescinded the decision of the commission to extend the shutdown and ordered it removed at midnight August 28. Barnsdall Pipe Line Co. restored its prices in Laredo, Tex. Skelly announced return to old prices in Kansas when shutdown is lifted. Shell Oil Co. announced it would pay 98 cents for below 34 gravity in East Texas, with 2-cent differential upward to 40° and over at $1.10.

August 29.—Louisiana cut its allowable for September 6,127 bbl. and ended shutdown August 29, as did Arkansas. Federal Tender Board denied approval of tenders for oil run by Humble under increase authorized by federal court. The company announced an appeal would be taken.

Stanolind Oil Purchasing Co., Lion, Atlantic, Republic, Plymouth, and Hiawatha companies announced resumption of the August 10 prices. Magnolia, Continental, Gulf, Mid-Continent, Phillips, Pure, Texas, Sun, and Carter had not reduced prices, nor had Barnsdall, Stanolind, or Shell in Oklahoma or Kansas.

August 30.—Ben Franklin Refining Co. restored its crude-oil prices in southern Oklahoma retroactive to August 11. Kanotex Refining Co. restored its old prices, effective August 30. Bell General Pipe Line Co. in East Texas resumed its $1.10 price, effective August 30.

August 31.—Effective on this date, Sinclair Prairie rescinded its August 10 cut, but in East Texas posted a gravity schedule beginning at 96 cents for below 33 gravity, with a 2-cent differential up to 40 and over at $1.10.

September 1.—Oklahoma, Kansas, and New Mexico lifted shutdown.

Appeal Taken in California Investigation

LOS ANGELES, Calif.—An appeal has been filed in federal court from a decision of U. S. District Judge Paul J. McCormick ordering 11 marketing companies under investigation by a federal grand jury of violation of the Sherman antitrust law to bring in their records.

In the appeal the companies' attorneys argued the grand jury could not peruse all the material demanded in 10 years and that the duces tecum violated all the laws covering investigations. The appeal was made to the District Court of Appeals and if this body receives the appeal it will halt the investigation of the special federal grand jury until a decision is reached on the records concerned. Reports indicate the present special federal grand jury may be kept in session for a year as the voluminous documents demanded from each company will require considerable time to peruse and determine their importance. Many of the documents demanded are so important the companies will not turn them over to any grand jury. It may be possible members of the jury will be able to meet at the headquarters of each company and peruse all such important documents. The District Court of Appeals will give the appeal precedence in order to facilitate the investigation.

In denying the motions of the companies to quash the grand jury subpena Judge McCormick had ordered the companies to be prepared to produce their records on September 6. The marketers concerned are Standard Oil Co., Richfield Oil Corp., Union Oil Co., General Petroleum Corp., Tide Water Associated Oil Co., Shell Oil Co., Texas Co., Rio Grande Oil Co., Signal Oil & Gas Co., Seaside Oil Co., and Gilmore Oil Co.

Judge McCormick held that: "It is undeniably true that the subpena requires the production of a great mass of material. It imposes an unusual and severe burden. This is unavoidable, by reason of the magnitude of the enterprises that are the subject of the investigation and the ramifications and complexities of detail that normally occur in the operation of great industrial concerns. The reasonableness of the requirements of a subpena in a valid grand jury investigation under the laws of the United States is a concrete matter." Judge McCormick set forth that the documents would be safeguarded while in the custody of the grand jury and the government lawyers and that their production before the grand jury would be staggered so as not to work an undue hardship on the companies.

The assistants to the attorney general in charge of presenting evidence charged the companies were attempting to escape compliance. Citing their main objection that it would be a hardship because of the magnitude of the documents due to the great size of the companies, the prosecutors argued that if such a doctrine was accepted there would then be one law for large corporations and another for the corner drug store.

End Midwest Oil Probe With No Cause for Action Found

DANVILLE, Ill.—A federal grand jury completed its investigation of oil company practices in 10 middle western states last week by reporting it had found "no cause for action."

Judge Walter C. Lindley accepted the report and immediately discharged the jury with approval of government counsel.

The jury pursued an inquiry to determine whether major oil companies had fixed and maintained artificial gasoline prices. It was summoned June 6 and recessed June 23 to August 31.

In announcing the Justice Department's new inquiry into oil company practices, Attorney General Murphy said last May two considerations prompted the investigation:

1. Indications that practices on which the Madison, Wis., oil trials in 1936 were based "have not been wholly abandoned in the oil industry."

2. A desire to have the grand jury question some of the persons named in previous indictments in an effort to "compel them to disclose all the facts within their knowledge" about alleged price fixing.

Forty-six out of seventy-two defendants in the Madison case were convicted by a jury, but Judge Patrick T. Stone sustained the conviction of only 17, which included 12 companies and 5 individuals.

The federal Circuit Court of Appeals at Chicago subsequently ordered a new trial for the 17 defendants who were convicted of violating antitrust laws by conspiring to raise and fix gasoline prices.

A review of the Court of Appeals decision by the U. S. Supreme Court has been asked by both the Government and the defendants. The latter contended the court should have entered judgments of dismissal.

W. R. Finney Transferred to New York

W. R. FINNEY

Standard Oil Co. of New Jersey announces the transfer of W. R. Finney, president of the Oklahoma Pipe Line Co., from Tulsa to the main offices at 30 Rockefeller Plaza, New York City, effective October 1.

Mr. Finney has lived in Tulsa for the past 3 years and handled the operations of the Oklahoma and Ajax Pipe Line companies and acted in an advisory capacity for the Standard Oil Co. of Louisiana pipe-line department, and in moving to New York will continue general supervision of the pipe-line work and, in addition, coordinate the Carter Oil Co. and Standard Oil Co. of Louisiana's producing units with the general offices in New York City.

Mr. Finney will join the staff in New York which supervises the production and pipe-line activities of the New Jersey organization, both in foreign and domestic fields. This is another promotion for Mr. Finney after 25 years of general experience with gas and electric plants and in pipe-line and production work in the United States, Mexico and Venezuela.

The routine operations of the Oklahoma Pipe Line Co. will be handled in Tulsa by Paul Griffin, as vice president, who has had some 31 years' service in pipe-line work, and he will be assisted by Bruce Ramsey as general superintendent and F. E. Warterfield, Jr., as chief engineer.

International

Trinidad . .

Production Continues at Accelerated Rate

PRODUCTION from Trinidad in July continued at the accelerated rate established during preceding months of this year and is reported to have totaled 1,620,564 bbl. for the 31-day period, an average of 52,276 bbl. daily. The July output compares with 1,575,321 bbl. reported in June which was at the daily average rate of 50,817 bbl.

During the first 7 months of this year Trinidad produced a total of 11,192,621 bbl. of crude oil, an increase of 1,239,588 bbl. over the same period in 1938.

Peru . .

Decline in Production But Discoveries Hoped

ALTHOUGH production has been continuing the decline begun in 1938, development of potential prospects under way in northern, eastern and southern Peru may provide additional fields in the near future.

Successful completions have been reported on at least two wildcat tests in the government reserved lands of Zorritos (Tumbes) and Pirin (Puno), as well as in the private concession of Blue Goose Oil Co. (an American concern composed of California interests) in eastern Peru. The new government wells have been small, averaging less than 100 bbl. daily for the four completions reported in recent months; but engineers are hopeful greater production will be obtained as knowledge of the structural conditions is broadened. Two of the four recently completed government wells were brought into production in the middle of August. With the recent purchase of the Zorritos refinery, formerly owned by Faustino Piaggo & Co., of Callao, the Peruvian Government is better equipped to promote the development of its reserved lands. Reports are current in the United States that preliminary investigation has been made by Peruvian engineers for materials to expand and improve the Zorritos refinery.

One producer capable of approximately 1,500 bbl. per day of high-gravity oil has been completed by the Blue Goose company on its 90,000-acre concession obtained from the Sneden interests of St. Louis. The property is on the Pachitea River near its junction with the Ucayali, east of the Andes, and its location makes a major problem of transporting crude oil to shipping terminals.

Most of the decline in Peruvian crude-oil production has been absorbed by International Petroleum Co. Output by Compania Petrolera "Lobitos" and Establecimiento Industrial Zorritos, the government company, remain approximately at levels obtaining during the past 2 years.

Total production of crude oil in Peru during 1938 amounted to 15,838,610 bbl., against 17,457,015 bbl. in the preceding year, a decline of 9 per cent. The decrease was accounted for by the reduced output of International Petroleum Co., Ltd., which dropped from 14,722,753 bbl. to 13,137,988 bbl., or from 84.4 to 83 per cent. The decline has been continued this year. From January to July, inclusive, this year, International produced 6,432,782 bbl., compared to 7,772,179 bbl. in the same period last year.

Production by companies follows:

	International Petroleum Co., Ltd.	Compania Petrolera "Lobitos"	Establecimiento Industrial Zorritos	Total
1937	14,722,753	2,695,048	39,214	17,457,015
1938	13,137,988	2,660,622	40,000	15,838,610
1939:				
Jan.	1,039,421	213,278	2,862	1,255,561
Feb.	914,632	190,446	2,593	1,107,671
Mar.	990,928	216,504	3,463	1,210,895
April	934,319	213,468	3,406	1,151,193
May	859,986	219,169	3,403	1,082,558
June	831,150	220,869	Not yet available.	

Refinery Production—1937-38

Kerosene, gas-oil, and asphalt production in 1938 was larger than in 1937, while gasoline and fuel oil showed a slight decline, according to the following table:

(Barrels of 42 gal.)

	1937	1938	First half 1939*
Gasoline	2,384,564	2,341,581	1,328,250
Kerosene	920,835	1,028,295	387,539
Fuel oil	1,803,762	1,721,523	998,272
Gas oil	779,591	1,003,447	530,180
Lubricating oil	25,254	29,706	14,941
Asphalt	78,641	142,830	53,436
Coke	2,364	1,789	769
Turpentine oil	9,492	9,247	...
Still gas and loss	115,858	125,519	43,336
Total	6,120,361	6,403,937	

*International Petroleum Co.

Iran . .

Decline in Production in First Half of 1939

A DECLINE of 450,600 bbl. in production from Iran was registered in June compared with May. The country produced an estimated total of 6,218,280 bbl. in June against 6,668,880 bbl. in May. However, the 1939 June production was 555,740 bbl. greater than reported for the same month in 1938.

During the first 6 months of this year Iran crude-oil production amounted to 38,000,600 bbl., a decline of 1,554,570 bbl., from the same period in 1938.

Russia . .

Resumes Imports of California Gasoline

THE Soviet Government has resumed the importation of California gasoline through the Pacific port of Vladivostok for distribution among inland military concentration points in the Amur River-Lake Baikal sector.

The Standard Oil Co. of California's tanker flagship W. H. Berg is due at Vladivostok with a 90,000-bbl. gasoline cargo. The smaller tanker W. S. Miller departed last week for the same port.

It is learned that continued heavy movement of motor and aviation fuel from California to the Siberian area is in immediate prospect.

Tankers . .

Seventy-one Vessels Under Construction

LLOYD'S Register reported that on June 30 steam and motor oil tankers of 1,000 tons gross and upwards under construction in the world numbered 71 vessels of 634,665 tons. Great Britain ranks third in tonnage being built:

	Number	Tons
United States	13	125,448
Sweden	13	120,500
Great Britain and Ireland	11	96,210
Germany	8	70,862
Italy	7	61,775
Holland	6	50,750
Denmark	4	36,400
France	2	28,400
Japan	4	24,100
Spain	2	12,220
Danzig	1	8,000

Of the total, 11 tankers of 99,448 tons were steam and 60 of 535,217 tons motor.

India . .

Anglo-Iranian, Burmah and Shell Join in Oil Survey

ANGLO-IRANIAN Oil Co., Burmah Oil Co. and Royal Dutch-Shell interests are reported to have joined in a plan for widespread exploratory work in India with a view to increasing that country's oil reserves. Petroleum prospects in the present productive area, notably in Burmah and Assam, have dwindled in recent years.

The joint operating agreement closed by the three leading British oil organizations, said to involve acquisition of concessions aggregating several million acres, is regarded as answering the recent annual report of Burmah Oil Co. showing heavy expenditures in efforts to strengthen that organization's position. Burmah at present is the leading oil-producing organization in British India. The company's annual statement pointed out that "we have embarked on an extensive geophysical survey of very extensive areas in India and Burmah which, expensive in itself, may lead to still heavier expenditure where it may point to the necessity of putting theories to the test of the drill."

It is understood plans in connection with the new survey to be undertaken jointly include the immediate drilling of three deep test wells, in widely separated areas of the territory. It is also reported one or more test wells will be put down on the island of Ceylon.

Egypt . .

Remarkable Increase in Output Continues

THE upward climb of crude-oil production in Egypt continued in May when output amounted to 375,865 bbl., in contrast to yield of 91,694 bbl. for the same month in 1938.

Egyptian crude-oil production for the first 5 months of this year totaled 1,654,503 bbl., compared to 482,382 bbl. for the same period in 1938.

Few Nations Supply War Oil Needs

(Continued from Page 23)

interest. The company operates the properties under a concession in effect for many years from the Iranian Government.

Fourth in rating in world shipments is Iraq whose production became available in 1934 when Iraq Petroleum Co., Ltd., owner of the Kirkuk oil field, completed a pipe line connecting to Tripoli, Syria, and Haifa, Palestine, on the Mediterranean Sea. Present deliveries at these two terminals are approximately 85,000 bbl. daily. A large refinery is being built at Haifa. At present most of the crude is shipped to French refineries with small quantities to Italy, Great Britain, and other European countries. The Iraq company is owned equally by English, French, Dutch, and American interests.

Rumania exports approximately 75,000 bbl. daily of its production, which for the first 6 months of this year averaged 127,624 bbl. daily. This excess oil goes to several countries, including sizeable shipments to Germany.

While the U.S.S.R. is the second largest oil-producing country, its exports have been decreasing steadily since 1932 and are now of little consequence in world markets. Export shipments so far this year have been less than 15,000 bbl. daily. These have been largely offset by imports from the United States to its eastern ports, so the country as a unit does not have crude in excess of domestic requirements.

Excess supplies of the Near East countries are at present largely absorbed by Japan and other markets of that part of the world. Shipments from those countries are not an important factor in European markets.

Over the past 5 years important production has been found on Bahrein Island in the Persian Gulf and the adjoining mainland of Saudi Arabia. Present exports from the two countries are about 25,000 bbl. daily.

Export shipments from Mexico since the expropriation of private properties in March 1938 have decreased to the point where they are no longer important in European supplies. Most of the shipments have been possible through barter arrangements with Germany.

The following table gives the approximate supplies available for export movement of the principal oil-producing countries based on present operations:

Country—	Bbl. daily
Venezuela	520,000
United States*	425,000
Iran	190,000
Iraq	84,000
Rumania	75,000
Colombia	50,000
Trinidad	40,000
Peru	30,000
Bahrein Island and Saudi Arabia	25,000
U.S.S.R.	15,000
Total	1,454,000

*Excess of exports over imports.

Summarized, the nations at war and neutral countries without oil supplies must look to three South American countries, the United States, Iran, Iraq, Rumania and Trinidad for most of the petroleum supplies. Should the war interrupt the movement of oil through the Mediterranean Sea, then greater quantities would be required from the oil fields of the South American and North American continents.

Previous War

All the facilities for producing and manufacture and the consumer demand for products have increased rapidly since the previous World War. World production in 1914 at the start of the war totaled 407,524,000 bbl. and in 1918 at the close totaled 503,514,000 bbl. World production will total more than 2 billion barrels this year, which means that present petroleum requirements are four to five times yearly what they were in 1914-18.

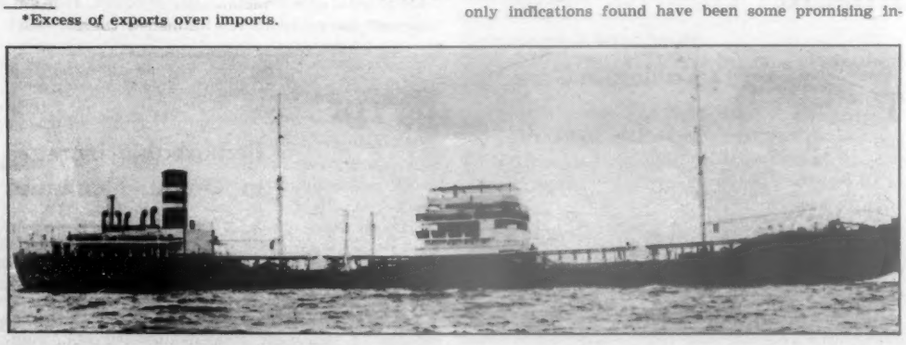
In 1914, the United States had 65 per cent of the world's oil production, followed by Russia with 16.5 per cent and Mexico 6.5 per cent. There was no reported production in Venezuela and the total output of South America was negligible. Poland's production at that time was substantially larger than it is now and the output of Iran was less than 10,000 bbl. daily. Rumania was fourth among the oil-producing countries with an output of 37,000 bbl. daily.

The allies, at the start of the war, obtained most of their oil supplies from three leading oil-producing nations—the United States, Russia, and Mexico. By 1918, important changes had taken place. Russia, plagued with internal as well as external troubles, had seen its production decline more than 60 per cent, and Rumania's production had decreased one-third. The output of Mexico had increased rapidly and Persia (Iran) had been expanded to approximately 25,000 bbl. daily. The United States and Mexico were furnishing the bulk of the allies' supplies when the World War ended.

Alaska Wildcat Below 4,000 Ft. Without Showings Yet

No. 1 Grammer, a joint wildcat of Tide Water Associated Oil Co., Union Oil Co., and Standard Oil Co. in the Jutebay district in Alaska, is drilling at 4,248 ft. in hard brown shale and limestone. This wildcat has 115 ft. of 16-in. surface casing, 1,054 ft. of 11¾-in. casing, and 3,759 ft. of 8⅝-in. casing landed to facilitate drilling operations. Considerable high-pressure water has been encountered but no commercial showings of oil or gas have been logged. It still has another 1,000 ft. of hole to make and it remains to be seen whether work can be completed before winter. The bit has just hit a very hard formation and the average footage for the last few days has been around 15 ft.

All indications point to the probability that work will be suspended before the close of September and that drilling will be resumed late in May 1940. The only indications found have been some promising indications of gas and a few thin streaks of oil sand. It is probable these operators will continue wildcat operations in Alaska indefinitely even though this test should fail to show commercial production. Recent geological study has indicated that Standard Oil Co. suspended work about 500 ft. too soon in its Alaska pioneer well which was abandoned several years ago. Only one conclusive wildcat has been drilled in Alaska and hence the district is still promising.



British tanker of Anglo-Iranian Oil Co. used to transport oil through the Red Sea and Mediterranean

THE MARKETS*

CRUDE OIL: Buyers who reduced posted crude oil prices in several states of the Southwest starting August 10 have all returned to the former schedules or their equivalent. In some cases the changes back to former schedules were retroactive. Several buyers now have a gravity schedule in East Texas with a top price of $1.10 for 39 and above. Less crude is selling under the posted prices since the lifting of the shutdown in six oil states, according to reports from several fields. Reductions in posted prices in several Illinois fields announced last month are still in effect.

REFINERY: While there have been no widespread advances markets generally are tight. Light fuel oils and lubricants are particularly strong at several points.

TANK WAGON AND POSTED DEALER: Less price-cutting reported under posted prices. A few scattered advances at subnormal points have been made effective.

FINANCIAL: Oil stocks strengthened due both to shutdown of fields and start of war. Average of 30 representative stocks for week ending September 2: High, 25.58; low, 22.29; close, 24.99. Week ending August 26: High, 23.49; low, 22.09; close, 23.18.

*Detailed information in market section.

DEATHS

ROBERT A. MACKIE, 81, chairman of the board of the Bradford Supply Co., died in Bradford, Pa., on August 30. Mr. Mackie was with the Oil Well Supply Co. for 20 years before assisting in 1907 in the organization of the Bradford Supply Co., of which he was made president.

FRED M. LEGE, JR., vice president of Magnolia Petroleum Co. and Magnolia Pipe Line Co., and manager of the natural gas and gasoline department of the company, died August 30 at Dallas, Tex. He first became connected with the industry as president of the North Texas Gas Co. at Corsicana in 1914. He moved to Dallas in 1917 as executive vice president and general manager of the Dallas Power & Light Co., later joining the Lone Star Gas Co. He joined Magnolia in 1930.

CHARLES GREER PORTER, 49, president of the Porter-Blanchard Oil Co. at Corpus Christi, Tex., died September 2 from injuries received in an automobile collision. Mr. Porter entered the oil business in 1925, and at the time of his death held extensive holdings throughout the state, as well as in Illinois, Oklahoma, Arkansas and New Mexico.

BERT A. MEAD, 62, retired employe of the Standard Oil Co. of Louisiana, died August 28 in Shreveport, La.

JULIUS RICKERT, 81, Count de Braban, native of Paris and for many years a petroleum geologist in Alberta and British Columbia, died at Vancouver, B. C.

WILLIAM LYON MacKENZIE, 75, managing director of the Oil Well Engineering Co. of Stockport, England, died August 28. A native of Petrolia, Ont., and formerly associated with the Oil Well Supply Co., he founded the English firm in 1907.

Special Illinois Session To Be Called in October

CENTRALIA, Ill., Sept. 5.—Factionalism among southern Illinois oil producers apparently is on the way out, at least for the time being, as representatives of erstwhile antagonistic groups are cooperating in a joint effort to obtain passage of oil-conservation measures at a special session of the legislature, probably to be called early in October.

Petitions asking Governor Horner to call a special session to consider conservation measures are being circulated, and it was reported here today that oil men representing about 97 per cent of the state's production have signed them. Cooperating in the circulation of the petitions are the Petroleum Association of Illinois, which successfully opposed regulatory bills introduced at the last regular session of the legislature; the Independent Oil Producers Association of Illinois, which sponsored the bills and conducted a vigorous but unsuccessful fight for their enactment; and the Illinois-Indiana Petroleum Association, largely representing producers in the old eastern Illinois fields. Major companies are supporting the movement for a special session, it is reported.

Members of the respective groups have adjusted their major differences and are agreed on the principle of oil conservation, although they still differ on certain details of the proposed legislation. These differences, it is believed by oil men in close touch with the situation, will be ironed out by the time the legislature assembles so that an almost unanimous front can be presented in support of conservation. A few small, independent operators, representing not more than 3 per cent of total production, are opposing any kind of regulation.

Proposed Four-Plank Program

Lieutenant Governor Stelle, who opposed proration of Illinois production when the legislature last met, not only has indicated he now favors conservation but has proposed four planks as the basis of a conservation law. His proposals, made in a letter to Clarence T. Smith, president of the Petroleum Association of Illinois, are:

A nonpartisan commission of Illinois citizens; minimum production allowables fixed by statute to the end that those engaged in the industry may receive a reasonable return on their drilling investment; production allowables above the base allowable, fixed by the commission upon pool demand based upon market requirement from that pool; common-purchaser provision insuring the ratable taking of all production from whatever source within the pool.

In suggesting his four-point program, Lieutenant Governor Stelle said: "I fully realize that oil development and production in Illinois has reached the stage where it now is producing the consumptive requirements of the state and contributing a small amount to general market demands in the midwestern area."

Mr. Smith said his association still is opposed to "stringent proration of production" but that "our organization has changed its policy to the extent that we are willing to sit down and discuss a conservation program. Such a program would involve a degree of control of production, without the strict proration system that the other oil states and major companies have wanted this state to have." Without detailing his conservation plan, he said it would regulate drilling operations and "involve some degree of production control," probably patterned after the Michigan regulatory law.

Appeal to Governor

John Pugh, president, and G. H. Blankenship, executive vice president, of the Independent Oil Producers Association of Illinois—both Centralia operators—are urging Governor Horner to call a special legislative session to consider conservation measures. They also wired the lieutenant governor, asking his cooperation and assistance.

Their association has advocated an oil-conservation law since early last spring, they pointed out in a telegram to the governor, adding: "We have believed fair and reasonable legislation would eliminate waste, stabilize the industry and contribute materially to the welfare and economic recovery of the state. It is gratifying to know such legislation now has approval of an overwhelming majority of Illinois producers. In view of the critical situation in the oil industry; the threat of possible federal control, if waste is not stopped, and the unanimity of opinion now prevalent among Illinois producers, we earnestly request that the legislature be called into special session for the purpose of considering necessary oil legislation."

Mr. Blankenship said his association's proposals included:

Ratable taking and common purchasing from every well in a pool; spacing regulations, with no drilling unit to be larger than one well to 10 acres in sand pools and one well to 20 acres in lime pools; minimum production allowables of 40 bbl. to one well, regardless of acreage. Owners of tracts smaller than 10 or 20 acres in the respective sand and lime areas would be permitted to drill one well on their tracts, under this plan.

"We realize Illinois is glutting the market and this unlimited production is one reason for unsettled conditions in the industry," Mr. Blankenship said. "The several groups of Illinois producers now are on common ground in their agreement that some measure of conservation is desirable and necessary. We still differ on details, but are confident a conservation measure, fair to all concerned, will have been agreed upon and ready for submission to the legislature, if and when the special session is called."

Ickes Scores Proration Opposition

WASHINGTON, D. C., Sept. 4.—Secretary Ickes last week bitterly excoriated forces in Illinois which are opposing oil proration legislation. In doing so he absolved Gov. Henry L. Horner of any blame in the failure of the state to act, alleging that major blame should be fastened on Lieutenant Governor Steele and the Pure Oil Co. He admitted, however, that Pure has now withdrawn its opposition to state legislation.

In commenting on the southern Illinois fields. Mr. Ickes declared: "Like all flush fields, they don't give a damn what happens in other producing states or throughout the country." He declined to make public the letter from President Roosevelt to Governor Horner relating to the oil situation in Illinois, explaining that either Mr. Roosevelt or Mr. Horner should make the correspondence public. He intimated, however, that Illinois so far had manifested no cooperation with the efforts being made to have the state join the interstate oil compact.

Governor Horner has needed no urging in recommending proration legislation, Mr. Ickes explained. "The governor himself has been urging the legislation and we have been supporting his efforts. He does not feel, however, that he should place oil conservation on the agenda for the special session of the Illinois Legislature unless he has reasonable belief that it will be adopted," he said.

Seek Greater Federal Control

THE National Resources Committee last week repeated its demand that oil and gas production be subject to greater federal control, and has recommended that a national energies resources policy be formulated to insure the wise development and use of all our fuels—oil, gas, water power and coal.

While the recommendations were practically identical with preliminary findings of the committee submitted to Congress back in February, publication of the full energy report last Thursday was considered significant in view of the introduction shortly before adjournment of Congress of an administration-sponsored bill for the oil and gas industry. The bill, submitted by Rep. William P. Cole, of Maryland, chairman of the oil subcommittee of the House interstate and foreign commerce committee, embraces some of the proposals made by the National Resources Committee.

Both the bill and the Resources Committee report contemplate the establishment of a petroleum conservation office in the Interior Department. This agency would regulate all oil and gas fields in which there is avoidable waste not regulated adequately by state or local agencies.

Establish Michigan Office

ORDERS were issued late last week by Secretary of the Interior Ickes, federal oil administrator, transferring John I. Watson, examiner with the Federal Tender Board No. 1 at Kilgore, Tex., to Lansing, Mich., to head the investigating office of the Petroleum Conservation Division of the oil administration established there.

Secretary of the Interior Ickes announced that the Michigan setup was of the same character as the federal Government had established in Louisiana, and would be directed to investigate whether there are violations of the Connally "hot" oil act, in shipments of oil or products produced from Michigan fields.

The Connally Act prohibits shipment of oil or products produced in violation of the conservation laws of a state, in interstate or foreign commerce. The only Tender Board maintained by the federal Government for issuing oil shipment permits is at Kilgore, but offices for investigation are established in Louisiana, and now Michigan which state has recently adopted a conservation law.

Refinery Expansion

W.P.R.A. Will Hold Monthly Meeting at Shreveport, La.

The regular monthly meeting of the technical group of the Western Petroleum Refiners Association, will be held on September 8, at the Washington-Youree Hotel, in Shreveport, La., beginning at 4 p.m. On this occasion M. A. Dewey, of E. I. du Pont de Nemours & Co., Wilmington, Del., will discuss: "Gasoline Antioxidants and Their Application in the Refinery." In the preparation of this paper J. R. Sabina and E. L. Korb, also of the Du Pont organization, collaborated with Mr. Dewey. The usual open forum discussion will follow conclusion of the paper.

Standard of Indiana Reports Earnings

CHICAGO.—The Standard Oil Co. of Indiana reported consolidated net profits of $14,979,693 for the first 6 months of 1939, compared with $17,749,092 for the same period last year. The earnings were equal to 98 cents a share on 15,272,022 shares outstanding, compared with $1.16 for the first 6 months of 1938.

Humble Awarded Contract For Air Corps Gasoline

WASHINGTON, D. C.—A contract of $621,197 for motor fuel for the Army Air Corps has been awarded to the Humble Oil & Refining Co. of Houston, the Public Contracts Division of the Labor Department has reported. Delivery is to be made during the rest of this year. The gas will be taken from plants at San Antonio and Baytown.

Rebuilding of Wabash Refinery Is Discussed

Tentative plans for the rebuilding of the Wabash refinery at Sandoval were being discussed by officials of the refining company, according to B. E. Burford, manager. The refinery was destroyed by a recent explosion. A new refinery would probably have a capacity of 1,000 bbl. of crude a day, approximating the same amount that was handled previously.

Need 11 Young Men for Foreign Refinery Work

The personnel department of Carter Oil Co., Tulsa, has been requested to secure applications for 11 apprentice operators for the Aruba refinery of Standard Oil Co. (New Jersey) located on the Island of Aruba in the Dutch West Indies, a short distance off the coast of Venezuela.

Applicants should be single, from 23 to 29 years of age, with a high-school education and one or more years of technical training.

Imperial Oil Extends Facilities in Ontario

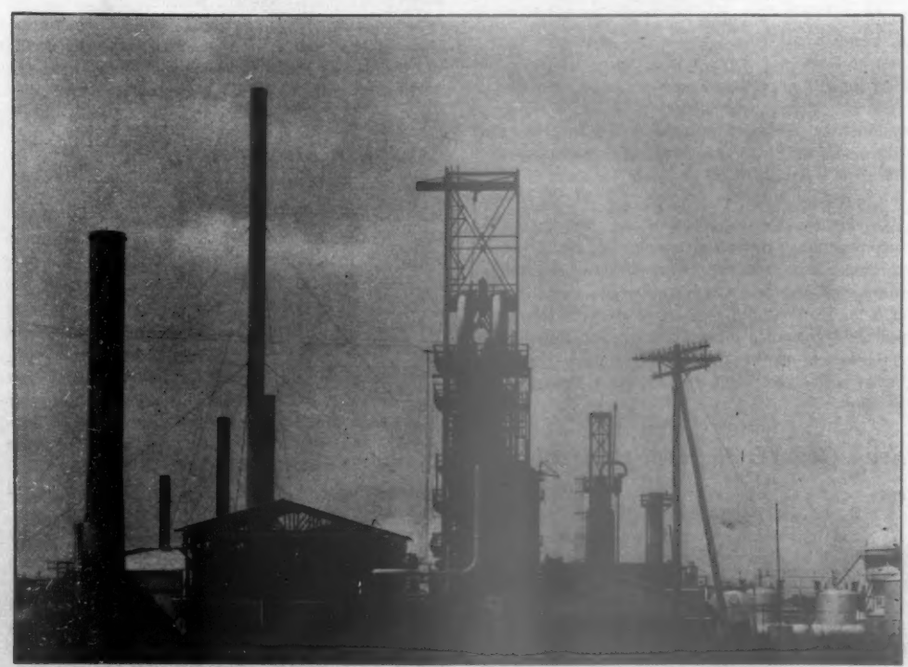
GODERICH, Ont.—Imperial Oil, Ltd., is planning the erection of four storage tanks at its waterfront depot here, doubling the present capacity of around 1,000,000 gal. Distribution will be completely motorized to cover territory as far east as Stratford, with an increased fleet of tank trucks of 1,000 gal. maximum capacity. Extensions will probably be made to the existing office and storage warehouse.

Glacier, Wyo., Refinery Resumes Operations

CASPER, Wyo.—Glacier Production Co.'s Cut Bank refinery resumed operations Friday, September 1, after a week's shutdown due to the fall of a 62-ton fractionating tower which cut the plant in two, severing overhead pipes and doing extensive damage.

The accident delays by one week the completion of the Socony-Vacuum unit which is now scheduled to start charging crude during the week of September 18. The Cut Bank plant is expected to run approximately 20,000 bbl. of crude during the month of September.

Decision to postpone for at least 1 year the construction of a pipe line from Kevin field to the Glacier Production refinery at Cut Bank was announced this week by J. W. Johnson, president of Producers Refining Co., of Shelby. At the same time he announced the awarding of a 1-year trucking contract to the Greenup Trucking Co., which is installing $15,000 worth of new equipment to transport the crude from Kevin wells to the new Socony-Vacuum unit of the refinery at Cut Bank. The amount of crude to be hauled will be initially about 500 bbl. per day.



General view of distillation equipment at Chalmett Refining Co. plant near New Orleans, La.

Natural Gas

Pacific Coast Laboratory For Gas Appliances

Gas appliance manufacturers and utility executives attended ceremonies marking the laying of foundation for a $40,000 Pacific Coast branch testing laboratory at Los Angeles. The laboratory, to be erected by the American Gas Association, will be built at 1425 Grande Vista Avenue.

Arthur F. Bridge, vice president and general manager of Southern Counties Gas Co. and a member of the American Gas Association Laboratories' managing committee, was the principal speaker. A commemorative plaque was placed at the front entrance.

The American Gas Association Testing Laboratories were founded by the gas industry to provide a central agency for the testing of gas appliances, ranges, water heaters, and house-heating equipment in order to insure uniform standards of safety, efficiency, and structural quality.

Huge Fines Imposed in California For Gas Law Violators

LOS ANGELES, Calif.—Of outstanding importance in California during the past week was the heavy fines imposed by Superior Judge Emmet H. Wilson against seven operators in the Montebello field for violation of the gas conservation law. The fines totaling $20,865 were imposed by Judge Wilson for violation of an injunction prohibiting production of gas above an allotted amount constituting contempt of court. George D. Nordenholt, state director of natural resources, instigated the suit several weeks ago. The injunction prohibiting gas waste in the Montebello field is based on gas outlets and potentialities and is predicated on the assumption that a production of 26,172,000 cu. ft. daily constituted maximum beneficial use and that any production in excess constituted waste. Each well was assigned a prorata share of the outlet, subject to changes in allotments from time to time as wells were completed. The California State Supreme Court recently upheld the validity of the injunction and denied a petition of La Merced Oil Co. for a modification.

The Superior Court recently appointed a group of engineers and geologists to investigate charges against seven Montebello operators for violation of the injunction. This group reported that the defendants were violating the injunction and submitted data showing the amount that should be produced. Because the companies failed to follow the court's orders, 12 defendants were named in contempt citations. Judge Wilson said the overproduction of some defendants was slight and there apparently was no intent to disobey the court's orders. In other cases, the court pointed out that overproduction had been so long and continuous that a total disregard of the court's decree was definitely indicated. The court branded this conduct as "wilful, intentional, deliberate and contumacious." He accordingly fined Stanley Oil Co., $290; La Merced Drilling Co., $570; Clarence A. Doody, $190 on one well, and $110 and $55 on another; Wood-Callahan Oil Co., $3,900 on 26 counts; West Montebello Oil Co., $3,500; Montebello Reservoir Co., $5,250 and Montebello Wesco, Inc., $7,000. Each of the last three were charged with 35 separate violations.

Contempt citations were dismissed against Hathaway Co., V-8 Oil Co., Pongratz Petroleum Co., McVicar

& Rood, and R. R. Bush Oil Co. In the latter cases the court held that overproduction had been slight and that a bona fide attempt had been made by those accused to control production. Previously, fines totaling $3,450 had been assessed by Superior Judge Charles S. Ballard against the same defendants Judge Wilson fined. The court indicated that further violations would be dealt with in a more concrete manner.

Natural Gasoline

Contract Let for New Cayuga Field Gas-Recycling Plant

DALLAS, Tex.—Contract for construction of a new gas-recycling plant in the Cayuga field was let to Frick-Reid Corp. of Tulsa last week by Tide Water Associated Oil Co. and Seaboard Oil Co. Plans call for a new plant, of the Vaughan type, to have a daily gas capacity of 40,000,000 cu. ft. Construction is to start in about 6 weeks it is reported.

The new plant will be the partnership's second plant in the Cayuga field as it already has in operation a like plant on the Joe A. Campbell lease which was recently doubled in capacity. The companies also are nearing completion of a third recycling plant on the Shaw and Cern lease in Long Lake field, Anderson County. Site of the new plant is the N. W. Willis lease, in the Edmondson Survey, in the north end of the partnership's block.

Carter Enlarging Illinois Plant

Carter Oil Co. is enlarging its pressure-maintenance equipment and plant in the Louden pool in Illinois. The present Dove plant is being enlarged and a new plant, larger than the Dove, is being installed on the Taylor lease in the pool, and will be known as the Taylor gasoline plant. A power plant to furnish electricity for field operations will be installed in connection with the Taylor gasoline plant.

The new plant will have six 235-hp. Type 10 Cooper-Bessemer gas-engine compressor units, and in addition to maintaining pressure in the central and northwest portions of the pool, will be capable of manufacturing from 20,000 to 30,000 gal. of commercial gasoline daily to be delivered to the St. Elmo loading rack.

The power plan will boast three 165-hp. Bruce-McBeth units which have been moved to St. Elmo from the Stewart plant near Seminole.

The capacity of the Dove pressure-maintenance plant, which has been in operation in the northeastern portion of the pool for the past year, will be doubled by the addition of two 300-hp. 300-r.p.m. Cooper-Bessemer compressor units to supplement the two now in service. With these the plant will be capable of handling 5,000,000 cu. ft. of gas per day. An absorber will also be added, and a new cooling tower and two pump houses.

Gladewater Gasoline Plant Is Enlarged

GLADEWATER, Tex.—With resumption of oil production from wells in East Texas fields and the starting of gasoline plants, the General American Gasoline Co. put a crew of 25 extra men to work and announced a new $75,000 addition to the gasoline plant in Gladewater.

President John Gilliland of the same company telephoned from Illinois to Superintendent Fred A. Williams here to restore half of a 20 per cent wage cut with progressive restoration to former schedule, depending upon stability of crude-oil and gasoline markets.

Capacity of the General American gasoline plant in Gladewater when finished will be 10,000 gal. daily of propane and other hydrocarbons in addition to 17,000 gal. per day of natural gasoline extracted from production of 600 oil wells on gathering system serving the plant.

Hanlon-Buchanan and General American here and Gregg Texas gasoline plant at Greggton, largest in the north end of the East Texas field, are back in operation.

Pipe-Line Activity

Making a bend in a 10-in. pipe line on a recent laying job in Illinois

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Arkansas Louisiana Gas Company Protests Competitive Line

Contending that the Federal Power Commission erred in authorizing the issuance of a limited certificate of public convenience and necessity to the Louisiana-Nevada Transit Co., Arkansas Louisiana Gas Co., an intervener in the original proceedings, has filed a petition asking that the order be rescinded and a rehearing granted.

The order of the commission granting the certificate was dated July 18, 1939, and authorized the Louisiana-Nevada Transit Co. to construct and operate a pipe line approximately 75 miles long for the transportation of natural gas from the Cotton Valley field in Webster Parish, Louisiana, to Okay, Howard County, Arkansas, with a 12-mile extension to the city of Hope, Ark., for the purpose of serving two industrial customers, Ideal Cement Co. and Hope Brick Works, and also to furnish natural gas to the Hope water and light plant owned by the city of Hope. All three accounts are now being served by the intervener.

Seventeen allegations are made by Arkansas Louisiana Gas Co. in the petition. Asserting that the territory is now being adequately served by Arkansas Louisiana Gas Co., the petition maintains that the order is in violation of Section 7 (c) of the Natural Gas Act which is designed to prevent unlimited and unregulated competition in an area already adequately served, and that no substantial testimony was introduced at the original hearings to indicate that the Louisiana-Nevada Transit Co. could render and maintain adequate service at lower rates than those now prevailing in the territory.

●

Dewey Whitworth and R. J. Sheehan, superintendent and vice president of the Sheehan Pipe Line Construction Co., and Jim Cummings, Crutcher-Rolfs-Cummings Co., on the Standard Oil Co. (Indiana) line from Kansas City, Mo., to Council Bluffs, Iowa

Standard Pacific Gas Line Files Incorporation

LOS ANGELES, Calif.—Hugh Fullerton, Renato Capocelli, and Charles A. Ruggles, of San Francisco, have filed articles of incorporation for Standard Pacific Gas Line Co., with capitalization of $1,000,000.

Kentucky-Indiana Gas Line Application Is Filed

General Gas Pipe Line Corp. has applied to the Federal Power Commission for reinstatement of its petition to construct 180 miles of natural gas pipe line with 40 miles of tributaries from Central Kentucky to Central Indiana. The project calls for the employment of 1,500 men and the expenditure of $4,500,000.

Alberta Pipe Line Investigation

EDMONTON, Alta.—Dr. Charles Camsell, federal deputy minister of mines and resources, has completed an investigation into the feasibility of proposed pipe lines for the marketing of Turner Valley crude to the Pacific Coast or the head of the lakes. No decision on the projects is anticipated until October.

Replace High-Pressure Line

SARNIA, Ont.—Union Gas Co. is replacing 3 miles of high-pressure transmission line south of Sarnia at a cost of approximately $25,000.

PROGRAMS AND MEETINGS

Appalachian Geological Society To Hear Leo Ranney

The first regular meeting beginning the winter season of the Appalachian Geological Society will be held Monday, September 11, at 6:30 p.m., in the assembly room of the Kanawha Hotel in Charleston, W. Va. The speaker of the evening will be Leo Ranney and his subject will be the first horizontal well in the Cow Run sand near McConnellsville, Ohio, which will be illustrated through the courtesy of the Du Pont Corp. with moving pictures of the drilling and shooting of this well. Members are permitted to bring guests from the oil and gas fraternity, the announcement from Robert C. Lafferty, president of the society, states.

Oil Company Use of Aerial Photography on Program

Petroleum engineers and geologists will be interested in the semiannual meeting of the American Society of Photogrammetry to be held September 26, 27, and 28, in San Antonio, Tex., with headquarters at the Plaza Hotel. National and international authorities have been secured to deliver papers.

Following registration on September 25, with a preconvention fellowship party, the sessions on September 26 will be divided to general photogrammetry and aerial photography. On September 27 the sessions will discuss aerial map making. On the closing day, September 28, the program on uses of aerial photogrammetry will include a paper on oil company uses by G. W. Herzog, Shell Oil Co., Inc., Houston, and a discussion by Blakemore, Meier, Russell and Bringhurst.

Southern California Section A.I.M.E. to Hear Pemberton

J. R. Pemberton, California oil umpire, will speak at the dinner meeting of the Southern California section of the American Institute of Mining and Metallurgical Engineers on ladies' night, Tuesday September 19, at the University Club, Los Angeles, Calif. Mr. Pemberton, noted ornithologist by avocation, will show and describe his colored movies of the California condor. Four years of photographic effort bring a close-up of the largest bird that flies, unique in historical times in North America.

International Exposition Exhibitors Signing Up

The first report since August 15 on space sales for the May 18 to 25, 1940, International Petroleum Exposition in Tulsa, just issued by Pres. W. G. Skelly, states a total of 72 per cent of the available space has been reserved. August 15 was set as the deadline for exhibitors to renew their automatic options on their old space.

General Manager William B. Way and his staff have completed an analysis of space sales to date, after renewing space contracts and assigning additional space to old exhibitors. Of the 165,338 sq. ft. of outside exhibit space, a total of 132,432 sq. ft. has been sold. To date 363 of the 685 booths in the five exhibit halls have been taken. A total of 201 contracts has been awarded, against 442 last year, and 136 other exhibitors who have asked to change locations and to buy additional space will be issued contracts as soon as possible.

As soon as old exhibitors have been assigned space desired under their options, over 50 firms who have not before exhibited at the Tulsa exposition will be given space contracts.

"This is the earliest period in the history of the exposition that 72 per cent of the space has been reserved," President Skelly said, "and this comprises more space than was sold for any one of the first nine expositions. The tenth exposition in 1938 was increased 50 per cent in size."

President Skelly also said demands for large exhibit tracts by the larger firms may necessitate using the park grounds south of the cafeteria as additional exhibit space.

General Manager Way declared the option deadline was set a month earlier this year to allow exhibitors more time in which to work out their exhibits. "Exhibitors," he said, "no longer prepare an exhibit in a few weeks, and some of the larger firms begin work on their exhibits 9 months in advance, and actually spend months preparing them. Representatives have already been sent by two of the larger companies from their home offices to survey the grounds and lay plans for large moving displays."

Since the formal invitation of the International Petroleum Exposition and the U. S. Department of State was issued to the governments of 25 oil-producing nations to participate, the nations are displaying great interest. The first representative to be sent by his government to check up on the show is John B. Tua, a member of the Italian consulate organization in the United States, who visited Mr. Way to obtain first-hand information. He was to report to his government on the advisability of sending a delegation of technical experts to the exposition in 1940.

MAGNETIC STORM

TUCSON, Ariz., Sept. 4.—Moderate storm began September 2 at 4 p.m., and ended September 3 at 4 p.m.

CALENDAR OF EVENTS

September

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, New York, September 4-8.

NORTH AMERICAN GASOLINE TAX CONFERENCE, annual meeting, Niccolet Hotel, Minneapolis, Minn., September 11-13.

MONTANA NATIONAL BITUMINOUS CONFERENCE, Sun Valley, Idaho, September 11-14.

AMERICAN CHEMICAL SOCIETY, Boston, Mass., September 11-15.

NATIONAL PETROLEUM ASSOCIATION, thirty-seventh annual meeting, Hotel Traymore, Atlantic City, N. J., September 13-15.

AMERICAN SOCIETY OF PHOTOGRAMMETRY, Plaza Hotel, San Antonio, Tex., September 26-27.

WEST VIRGINIA OIL AND NATURAL GAS ASSOCIATION, annual meeting, Charleston, September 27-28.

SOCIETY OF AUTOMOTIVE ENGINEERS, Hotel Schoeder, Milwaukee, Wis., September 28-29.

October

NATIONAL LUBRICATING GREASE INSTITUTE, Stevens Hotel, Chicago, October 2-3.

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Petroleum Division, Galveston, Tex., October 5-7.

WESTERN PETROLEUM REFINERS ASSOCIATION, regional technical meeting, Allis Hotel, Wichita, Kans., October 5.

TEXAS MID-CONTINENT OIL AND GAS ASSOCIATION meeting, Houston, Tex., October 5-7.

AMERICAN GAS ASSOCIATION, annual convention, New York, October 9-10.

NATIONAL TAX CONFERENCE, Palace Hotel, San Francisco, Calif., October 16.

SOCIETY OF AUTOMOTIVE ENGINEERS, annual dinner, Hotel Pennsylvania, New York, October 16.

NATIONAL STRIPPER WELL ASSOCIATION, annual meeting, Fort Worth, Tex., Blackstone Hotel, October 17.

INDEPENDENT PETROLEUM ASSOCIATION OF AMERICA, tenth annual meeting, Fort Worth, Tex., October 18-20.

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, Petroleum Division, Los Angeles, Calif., October 19-20.

WEST VIRGINIA PETROLEUM ASSOCIATION, Hotel Daniel Boone, Charleston, W. Va., October 25.

COLORADO PETROLEUM INDUSTRIES COMMITTEE, annual convention, Shirley-Savoy Hotel, Denver, Colo., October 17.

WESTERN PETROLEUM REFINERS ASSOCIATION, regional technical meeting, Washington-Youree Hotel, Shreveport, La., October 27.

November

SOCIETY OF AUTOMOTIVE ENGINEERS, fuels and lubricants meeting, Mayo Hotel, Tulsa, November 2-3.

NATIONAL MOTOR TRUCK SHOW, Navy pier, Chicago, November 8-16.

AMERICAN PETROLEUM INSTITUTE, twentieth annual meeting, Stevens Hotel, Chicago, November 13-17.

AMERICAN INSTITUTE OF CHEMICAL ENGINEERS, Providence, R. I., November 15-17.

December

WEST CENTRAL TEXAS OIL AND GAS ASSOCIATION, Abilene, Tex., December.

AMERICAN SOCIETY OF MECHANICAL ENGINEERS, Philadelphia, Pa., December 4-7.

February 1940

AMERICAN INSTITUTE OF MINING AND METALLURGICAL ENGINEERS, New York, February 12-15.

April

AMERICAN ASSOCIATION OF PETROLEUM GEOLOGISTS, twenty-fifth annual meeting, Stevens Hotel, Chicago, April 10-12.

AMERICAN PETROLEUM INSTITUTE, eastern district, Division of Production, Columbus, Ohio, April 11-12.

NATIONAL PETROLEUM ASSOCIATION, semiannual meeting, Cleveland Hotel, Cleveland, Ohio, April 18-19.

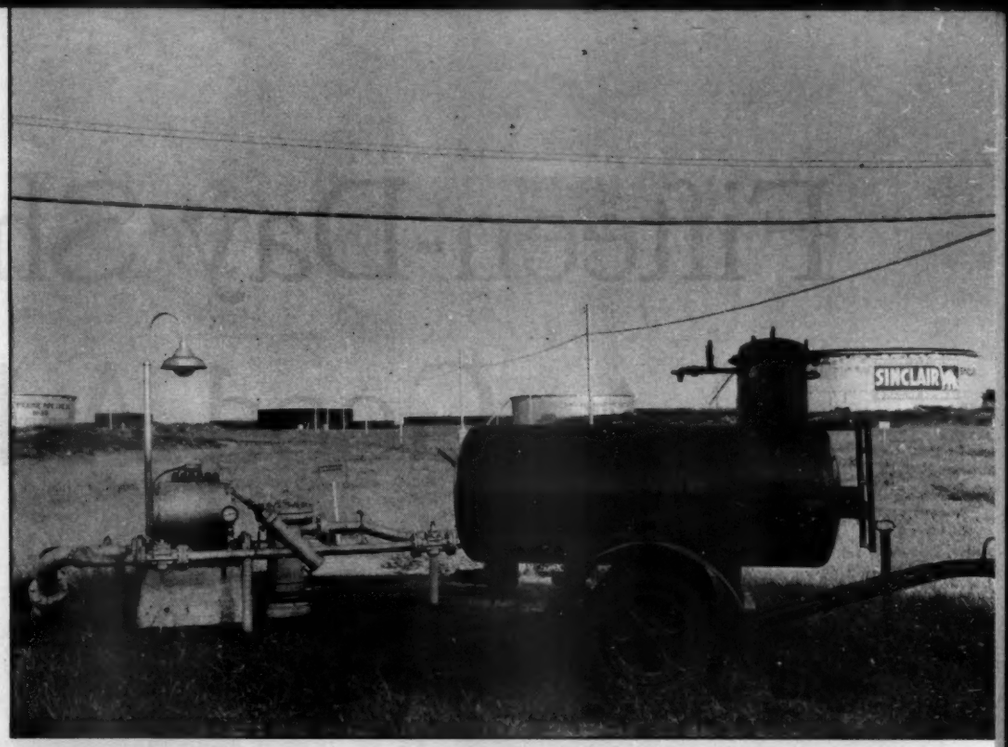
May

NATURAL GASOLINE ASSOCIATION OF AMERICA, annual convention, Hotel Tulsa, Tulsa, May 15-17.

INTERNATIONAL PETROLEUM EXPOSITION, Tulsa, May 18-25.

June

THIRD WORLD PETROLEUM CONGRESS, Berlin, Germany, June 9-15.



An increasing use of pipe-line meters is being made throughout the Mid-Continent. Companies are providing various means for checking the accuracy of the meters. Here is shown a portable meter-calibrating tank with a meter at the left. In operation, a definite quantity of oil is run from the tank truck through the meter and the meter reading is recorded. Knowing the quantity of oil which left the tank, any deviation of the meter reading from the known quantity can be established as a correction factor. Unusually accurate readings are thus made possible

ENGINEERING & OPERATING

SEPTEMBER 7, 1939

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FIFTEEN-DAY SHUTDOWN PERIOD USED TO GOOD ADVANTAGE ..... Page 42

Production engineers and operators in the states of Texas, Kansas, New Mexico, Arkansas and Oklahoma, faced with the necessity of shutting down all wells in these states for an indefinite period, utilized their routine equipment and personnel to the best advantage. The operations in these fields during the period are summarized.

SOME PRACTICAL ASPECTS OF FUEL-OIL TESTING
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A discussion of the manipulative technique in regard to the customary tests applied to fuel oils, and the practical importance of the tests. The author points out some pitfalls that must be avoided.

VAPOR-PHASE COOLING FOR INTERNAL-COMBUSTION ENGINES
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Fifteen-Day Shutdown to Good Advantage

DURING the shutdown period in North Louisiana and Arkansas, no cases were reported of companies laying off employes. In many instances, those men on leases, natural-gasoline plants and stations, where the shutdown interrupted operations, who had not taken vacations were given them. The remainder were kept busy in a general cleanup and equipment-checking program.

At the beginning of the Louisiana shutdown August 17, some operators were not certain whether gas-lift wells were to be construed as pumping wells in the fields where controlled production existed, and accordingly closed in such wells. Classifying such wells as pumpers, and allowing them to produce followed and they were reopened. In cases where gas-lift wells were shut in as in Rodessa, such wells were pressured up and a pressure was maintained on the well head to facilitate easy kickoff when they should be reopened.

The supplementary order issued by the Louisiana Department of Conservation, limiting daily production of stripper, pumping, gas-lift and condensate wells to 25 bbl. daily, affected a few wells in North Louisiana outside the Rodessa field. The order was followed by restricting such production and no harmful effects to wells was anticipated. Wells making high water percentages were expected to assume normal production rates after water was pumped off and following lifting of the shutdown. Gas-condensate wells in the state were unaffected by the pinching in, and in some cases, where allowable production was lagging before the shut-in, it is expected that it may be made up before the end of the month.

In Rodessa some plug-back and reworking jobs were under way, but the work was not widespread in the field. Settled operation in that field has allowed companies to spare men for maintaining wells and leases in that field in good shape, so that little was needed along those lines.

The Arkansas Oil and Gas Commission conducted a thorough survey of reservoir pressures in the controlled-production fields. The order which brought the shutdown was based on the need for making tests, and with the cooperation of company engineers, commission men gathered considerable data of value in guiding future conservation measures. The commission was particularly interested in the Jones-sand reservoir of the Schuler field. In the past two state hearings the two major oil companies in that pool have presented requests for a change in the formula used in calculating per-well allowables. The present basis is the acre-pound, and the formula asked by the two operators takes into account the addition of sand thickness, porosity, permeability and saturation. Consequently, careful pressure tests were run daily on key wells in the Jones sand to study any indication of relative pressure trends among the individual wells, the results to determine the commission's decision on granting the new allowable plan. The litigation which brought only partial shutdown at Schuler during the first few days of the period interrupted these tests, but extension of the shutdown in the Jones sand to September 4 is expected to give engineers enough data to arrive at conclusions.

Skid-mounted portable hoist, which was moved from well to well for pulling rods and tubing in preparation for cleaning out

Below: Pumpers, relieved of usual duties by shutdown, were placed in lease cleanup or rod and tubing crews

The Magnolia field of Columbia County, South Arkansas' greatest reserve today, was also checked closely as regards pressure trend. The active water drive in this field, which has kept the reservoir pressure fairly constant despite added withdrawals, served to build up pressure as expected, and a survey taken during the shutdown period showed a buildup of over 70 lb., with the cumulative effect by the end of the period expected to be much greater. Concentration on Schuler and Magnolia kept commission engineers busy in those fields.

No unusual precautionary measures were necessary in shutting in wells of the flush fields in Arkansas, nor are any anticipated in reopening them.

In North Louisiana pressure surveys were carried out in the Shreveport field just prior to reopening the wells. Daily tubing and casing pressures on the shut-in wells were also checked. The shutdown period is expected to show a marked improvement in the pressure situation of this field.

Production of natural gasoline in North Louisiana and the Texas sector of Rodessa is estimated to have dropped over 25,000 gal. daily. The initial shutdown order had its greatest effect in Rodessa, where some plants closed down. The largest plant in the field, however, remained in full operation, replacing casing-head gas supply with gas-well production, and handling its added gas in the company's gas system. The supplementary state order to restrict pumping condensate and gas-lift wells to 25 bbl. daily showed its greatest effect in Cotton Valley, but no plants were closed down completely.

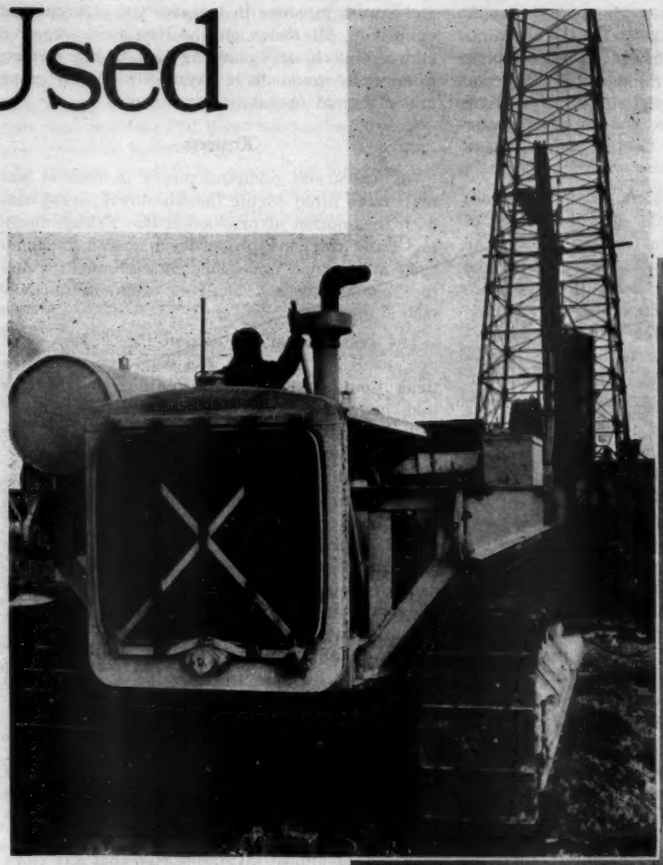
A large percentage of natural-gasoline plants in North Louisiana are supplied from sources which were not affected by the shutdown. In Arkansas all plants were located in fields unaffected by the order, so there was no change in their operating

Period Used

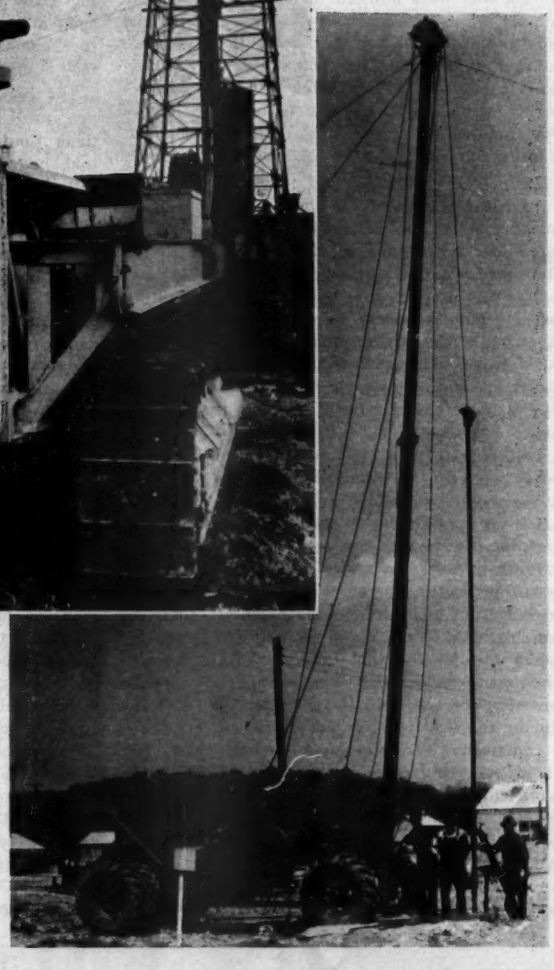
Production engineers and operators are now able to review field conditions during the 15-day shutdown of all important oil pools in Texas, Oklahoma, Louisiana, Kansas, New Mexico and Arkansas. They are also witnessing the first effect of the shutdown upon wells that have resumed production. It will require months to accurately state the results in all instances but general observations may be made now and here are summarized the experiences of engineers and operators in the affected areas as compiled by the staff of The Oil and Gas Journal.

It will be remembered that the period of shutdown extended from August 16 to September 1. It was unprecedented. The order was given immediate and complete support throughout these states, the only exceptions being the wells making abnormally large quantities of water, which might be permanently injured as producers. In the progress of the shutdown an increasing number of "water" wells were opened up. At no time, however, was the production of oil from these wells of importance. Most of the dry gas wells supplying public service lines were allowed to produce.

Bottom-hole pressures were taken by several companies and as may be expected, the pressures increased over the period but at least 2 months must pass before definite conclusions may be reached.



Tractor-mounted well-servicing unit used in a well-repair campaign during the shutdown period



Portable cleanout rig with telescoping mast used to operate a sand pump in medium-depth wells

status. A new plant in the Shreveport field of Caddo Parish, Louisiana, was delayed in beginning operations, but all necessary connections and final completion work were carried out during the shutdown, and the plant went on initial operation August 30.

Repressuring properties in this area are restricted to uncontrolled production, and remained on the same operating schedules during the period.

The general opinion in this area is that the shutdown was successful in gaining its end, without any appreciable damage to wells. There is no indication of a letup in drilling as a result of the measures, although several wells which were completed during the shutdown were not permitted to flow for gaging.

The surprise termination of the shutdown period in Texas at midnight August 29, and the similar action in Louisiana effective 7 a.m. August 30, necessitated some fast work on the part of field men and natural-gasoline-plant operators, but no instances of delayed reopening have been reported.

West, North Central and East Texas

In West Texas, North Central and eastern Texas operators made the best of the shutdown by doing clean-up work, installation of equipment to promote efficiency of operation and general repair work. In most instances employes who had not yet taken their vacations were urged to do so during the production holiday, and the remainder were kept busy at their normal posts or assigned to other duties. Only in a relatively few instances were men temporarily laid off.

Since Texas operators have been thoroughly accustomed to the practice of shutting in their wells for short periods, due to Saturday and Sunday shutdowns, in most instances it was not necessary to take any special precautions in preparing for the 15-day holiday.

In general, pumpers were kept busy on the leases where they normally are stationed. However, in doing special work entailing the use of several men, in some instances employes from other nearby leases were moved in to help out. Some companies kept their employes busy pouring concrete foundations for pumping units, derrick floors and other concrete work making for increased efficiency and safety of operation. Or, if wells were expected to go on the pump in the near future, preparation was made at this time. If the well was to be pumped by an individual unit, the foundation was poured and the location otherwise prepared for receiving the unit. If it was to be pumped by a central power, necessary auxiliary equipment was installed for receiving the pull rods.

In some instances during the shutdown, advantage was taken to repair leaky pipe lines that normally could not be mended without shutting down the line while repairs were being made. One company took advantage of the holiday to lay a new river crossing at the Red River, replacing a leaky line that had long been in need of repair. On many leases dead lines were dug up and the pipe made ready for re-laying.

Shortage of gas caused many of the repressuring projects in North Texas, where over 5,000 wells are under repressuring, to be shut down. Wherever possible, however, the operators continued injecting gas as it is generally believed that during such a prolonged closing the gas would have a tendency to channel, or effectiveness of the drive would be hindered. At the few water floods under way in this area, injection of water was continued.

Drilling operations for the most part were shut down after drilling into the top of the pay, especially so in West Texas and Southeast New Mexico. Since the well could not be produced or a potential test made, contractors or companies operating rigs were not hurrying to complete the wells. Only a comparatively few wells remained shut down for as much as 4 or 5 days. A much larger number, however, were closed down due to shortage of fuel.

In West Texas all wells in five fields were exempted from the shutdown due to excessive water. These were the Hendrick, Leck, Eaves, Taylor Link and Tobarg fields. A total of 642 wells in these fields were allowed to continue on production, many of which produce as high as 98 per cent water, with a total daily allowable of 14,635

bbl. Shutting in of most of these wells would have resulted in much difficulty for the operators to place them back on production, if not complete abandonment, due to the rapid water drive and their advanced stage of depletion. A few wells in other fields were allowed to continue on production due to water, mostly in the Howard-Glasscock field.

Remainder of the 800 wells allowed to produce in West Texas with a total daily allowable of 19,895 bbl., were allowed to produce in order to supply leases and small towns with fuel. In the South Ward field, however, some 16 wells were allowed to continue production due to floating-sand conditions, and in a few isolated instances wells were allowed to flow in order to supply fuel for drilling rigs. A total of 1,001 wells with a daily allowable of 4,168 bbl. were continued on production to supply gas for domestic use.

In North Texas, where there are some 26,000 stripper wells, the Railroad Commission first issued an order exempting all stripper wells from the shutdown. Later this order was rescinded and only wells producing excessive water or pulling over 10 points vacuum were allowed to produce. Even with these restrictions, however, a total of 8,784 wells were produced, pumping 33,376 bbl. daily, but the amount produced during the holiday will be charged back against future allowables of the wells.

In the East Texas field the shutdown is expected to work to the disadvantage of the edge-well owners, as it will allow the encroaching water to catch up somewhat with the oil. The water drive is from the west to the east so that the water level in some west-edge wells is now higher, thus resulting in the operators having to produce a higher fluid volume in order to obtain their allowable. Bottom-hole pressure measurements taken by the Railroad Commission during the shutdown showed that the average bottom-hole pressure for the field had increased over 31 lb. during the first week of the shutdown.

Practically all natural-gasoline plants, except those operating on sour gas in the Panhandle, were closed down during the period. Most companies used this time to thoroughly inspect all processing equipment and make any needed repairs, and to thoroughly clean the plants inside and out. One company took down all its engines, scrubbed out all coolers, heater exchangers and condensers in order to increase the efficiency of operation. All leaky gate valves were repaired and several changes made in the pipe-line connections that would have been difficult to make under normal operating conditions.

Kansas

Oil leases and pumping plants in Kansas had their faces lifted during the shutdown period, and with resumption of production last Friday morning many company properties had that spic-and-span appearance impossible of attainment while the regular work of bringing crude to the surface is under way.

The cessation of production for 2 weeks did not result in less work for employes, but gave them time to turn their attention to odd jobs that had accumulated during years of regular activity—work that was important, yet of the type that could be postponed indefinitely.

Few men were laid off during the shutdown. Regular employes of major companies, as well as those of a majority of independent operators, either continued at work or took their vacations with pay during the period. Some of the companies requested their employes who had not had their annual vacations to take them during the shutdown if they so desired, while others directed that this be done. In some instances, however, operators took the position that vacation schedules should not be interrupted and their employes went ahead as usual, excepting the nature of the work was changed to meet the conditions. A few of the smaller operators laid off some of their regular workmen, and in almost all cases day laborers and odd-job workmen were idle.

It was the almost invariable rule that any work involving the production of oil was stopped as abruptly as possible when the Kansas shutdown order became effective, although in a few instances wells already in the pay were completed. In those cases, such oil as was produced was held in storage on the leases.

One major company, active in both the flush areas of western Kansas and in the stripper districts of the eastern counties, was among the first to cease all production work. It had anticipated the shutdown, had scouts at both the Oil Compact Commission meeting in Oklahoma City and at the Corporation Commission meeting in Kansas, and as soon as word was received from the scouts that the order had been issued the report was relayed to field superintendents and within an hour or two all the company's wells were shut in. This particular company had two wells ready for completion, but they were shut down to await testing after lifting of the shutdown. Other operators followed suit in rapid succession.

The order to cease production came so quickly that few operators found time to make any special preparations for their respective wells. One company started pumping off water from its wells, but quit as soon as it was learned that was contrary to the Corporation Commission's order. Pressure tests were taken on a few wells, but many Kansas operators did not think this necessary.

The schedules of work followed by the several operators generally were similar, differing only in details. The following reports of several of the larger operators are characteristic:

One company had its pumpers and lease employes police its properties; cut weeds, clean out ditches, ponds, pits; repaint and redecorate pump stations, lease houses; repair machinery, replace damaged parts, rejuvenate equipment. The employes worked largely on their own leases.

A second company reported it had been operating short-handed, and had sufficient repair and police work to keep all hands busy. It turned some of its pumpers to roustabouting, working in gangs under farm bosses with pumpers from neighboring leases. They rejuvenated the leases, cut weeds from rod lines, cleaned up the premises generally.

A third operator said he anticipated work that would be required in the regular activity of production, such as laying water and gas lines and installing new machinery. Lines not in use were taken up. Pumpers worked as roustabouts under superintendents and farm bosses on odd jobs as directed. This company refrained from doing any work on the wells, such as pulling rods, cleaning out and the like because it feared that if it "got to messing with the wells, some oil would be produced," and they didn't desire that.

Injection of gas in repressuring projects continued with little curtailment, wherever it was possible to obtain gas without oil for this purpose. The wells being repressured were not allowed to produce oil, however. In the water-flood districts of eastern Kansas, injection of water continued on practically all projects where it could be done without pushing oil from the well.

Many gasoline plants were shut down, or work curtailed. One big company estimated about 50 per cent of the plants were shut down, and that others operated with about 40 per cent curtailment.

A majority of the operators went right ahead with their field work, only suspending drilling operations when the bit reached the pay. Some operators, however, curtailed drilling activity, especially in areas of shallow production. Likewise, many operators began new work as though nothing had happened, although some delayed starting drilling of new wells until the end of the shutdown.

It was the almost unanimous opinion of the operators interviewed that little damage would result to producing wells because of the shutdown. It was thought that in some instances it may be necessary to pump wells 2 or 3 days to get rid of accumulated water, and that in other

Well-repair work boomed during production shutdown. Old equipment was often replaced with new items

instances wells may have to be swabbed back into production.

The operators were loath, however, to go on record as to the possible results, saying they would be better able to make a statement within a month or 6 six weeks after resuming production.

Some operators expressed the belief that minimum damages may have been suffered by some of the older properties, but that the shutdown may have restored pressures to better working conditions, with the benefits offsetting damages.

Gulf Coast Texas and Louisiana

All companies in South Texas and South Louisiana are busy checking their respective wells to determine possible beneficial or harmful results. Although it still is a little too soon after the lifting of the shutdown for any authoritative conclusions to be drawn, the majority of companies feel that there will be no permanently harmful results, except in scattered instances. There are hundreds of wells, principally weak and low-pressure wells, that failed to respond when opened, but it is believed that most of these can be placed back on production with swabbing or agitation. Since lifting of the shutdown, swabbing crews have been kept busy. A week or 10 days may be required to get all wells back on production. It is possible that pumping equipment or other means of artificial lift will have to be resorted to in numerous instances, but it is probable that these wells soon might have required artificial lift anyway.

It was the intent of the shutdown to close in only wells for which there was reasonable assurance no permanent injury might result. There were many wells of this nature which were not shut in. Also no particular harmful results are anticipated in those wells which were shut in. A number of operators have been accustomed to shutting in their wells during the Saturday and Sunday shutdowns, so they knew pretty well which wells could be shut in and which could not. The only difference this time has been in the length of the shutdown. Wells which had been making water are given a longer period for water accumulation.

Although exemptions were obtainable for wells which might have been harmed by shutting in, several companies made no claim for exemptions on any of their properties, except in fields in which other operators kept their wells on production. In fields in which the company was the sole or principal operator it conformed with the shutdown order 100 per cent regardless of the wells, shutting in flowing, pumping and water-producing wells alike. Companies which followed this practice are anxious to witness the results in the water-producing wells, the latter being the type which could be affected most.

Wells productive of large volumes of water that were shut in may require long periods of producing to get ahead of the water again and start making oil.

Twenty-five fields in the upper Texas Gulf Coast district (Houston area or Southeast Texas) were exempted in their entirety due to peculiar production conditions. These fields were largely of the piercement salt dome type, in which formation and pressure conditions are extremely irregular.

Prior to the shutdown varying producing practices were followed. Some companies usually sought to produce their allowable production in short periods each day and then shut the wells in the remainder of the days. Others preferred to produce all wells over a 24-hour period at a steady rate. For the Saturday and Sunday shutdowns, some companies were shut down on shutdown days, while others, with special permission of the Railroad Commission, would distribute 5 days' production out over the 7-day period, rather than run the risk of shutting down wells completely. On the Gulf Coast each well is an individual problem and these companies governed their practices accordingly.

In opening production, some time also will be required in making adjustments in rates and manner of flow to get the wells producing properly. Summing up the above it may require a week, 10 days or 2 weeks or longer before South Texas and South Louisiana fields will be back on a normal producing basis. It should be remembered, however, that in Louisiana a blanket exemption from the shutdown was made of all wells making dangerous amounts of water, pumping and stripper wells and gas-condensate wells connected to commercial lines. All such exemptions, however, were limited to 25 bbl. daily each.

In summary, along the Texas and Louisiana Gulf Coast there were no general layoffs or leaves of absence without pay issued the field men. All office production department employes were retained. Some companies sought to have all who had not taken vacations take them then. Others, however, stated their vacation schedules had been made up long in advance and that these could not be changed conveniently. Several companies claimed practically all vacations had been completed. Most companies were extremely lenient.

Well-pulling and clean-out work was generally not affected as wells in which this work is frequently necessary were generally among the wells exempted from shutdown, and the work would not be unusual. It is expected that quite a few wells shut in may have accumulated sand which will increase cleaning-out work as the wells are placed back on production. The shutdown afforded opportunity, however, for checking over of equipment.

In the case of wells making water, several companies attempted to unload as much water as possible from these wells before shutting them in so there would be that much less water accumulation during the shutdown. No other special preparations were made.

No special bottom-hole pressure work after shutdown has been ordered. Some companies take regular bottom-pressure surveys anyhow. The shutdown occasioned nothing out of the ordinary routine in this respect.

Repressuring projects were shut down.

Gasoline plants were shut down except in a few instances where gas was available. The production of gas was permitted only if required for gas utility lines.

There was no stoppage of drilling or new work. There were isolated instances of shutdowns of drilling equipment due to lack of fuel.

Oklahoma

In Oklahoma, most companies adopted a policy of having employes take vacations due them during the shutdown period. Regular employes were kept busy at work which would improve the operation of producing properties. Once this work of cleanup and repair was well under way, some operators regretted that they had encouraged employes to take vacations at this time, because it was found that in the general overhaul there was enough to do to continue keeping the men busy for another week after the shutdown ended. If all hands had been on the job the work could have been pushed along faster.

Pumpers, in most cases, worked on the leases where they were stationed. Some companies detailed pumpers to work with servicing crews. Work during the shutdown has either been outlined by the management or left to the direction of district superintendents and supervisors. One major company organized pumpers into gangs of 10 and 12, working under the direction of a gang pusher. A gang of this kind takes one property after another in the general overhaul and cleanup campaign. It was claimed that by organizing pumpers into gangs the work could be planned so that it could be carried on systematically. It was also found that a dozen men working together as a team would accomplish more than the same number working individually.

Although operators adopted different policies in regard to well servicing, most reports from the field show an increase in cleaning out and well servicing of all kinds. Other work done consisted of engine overhaul and the moving of engines and units from one place to another where changes would lead to more efficient operation. Pumping equipment has been replaced before it was absolutely necessary to do so. Leaky lines have been repaired and old lines have been dug up. Junk has been picked up and buildings have been painted.

A few companies have made a point of taking bottom-hole pressures in areas where studies of reservoir conditions are particularly important. In these cases, bottom-hole pressure measurements were taken just before shutting down and starting up. It is reported that measurements of this kind were taken at Billings, St. Louis and Oklahoma City. Some operators instructed pumpers to observe fluid levels before shutting down and starting up. There have also been requests for pumpers to keep records of the way individual wells produced after the shutdown was over. It will take 2 months to interpret the data gathered during this unprecedented experiment on the industry. It is believed that the effects may be far-reaching. Production men have expressed the opinion that it is possible that the Oklahoma City field might be benefited by a month's shutdown which would result in a leveling off of oil and water which would mean that working barrels could be raised and operating conditions improved.

Federal Power Commission Has Additional Duties

Seeking to expedite and centralize the issuance of presidential permits for the construction, operation, maintenance or connection of power lines for the transmission of electric energy between the United States and foreign countries and pipe lines for the exportation and importation of natural gas. President Roosevelt by executive order No. 8202 has authorized and requested the Federal Power Commission to assume additional duties in connection with the issuance of such permits.

The new executive order calls upon the commission under the president's signature "to receive all applications for permits for the construction, operation, maintenance, or connection, at the borders of the United States, of facilities for the transmission of electric energy between the United States and foreign countries, and for the exportation and importation of natural gas to or from foreign countries, and after obtaining the recommendations of the secretary of state and the secretary of war thereon, to submit each such application to the president with a recommendation as to whether the permit applied for should be granted, and if so, upon what terms and conditions."

The commission is authorized in the executive order to prescribe such regulations not inconsistent with the order as it may deem necessary or desirable for carrying out its provisions.

The commission is notifying the natural gas companies which have applications pending under Section 3 of the Natural Gas Act and have not hitherto obtained presidential permits, of the requirements for obtaining permits.

METALS in DRILLING

By W. L. NELSON

PART 3

Rotary and other heavy-duty chain must sustain such enormous loads that the chain tends to become heavy and bulky—with the result that the weight is further increased and the duty becomes even more severe. For these reasons, steels that are relatively light for their strength, have been used extensively. A number of high-strength steels are available (note Table 3), but the real development of properties is dependent on the heat treatment as well as the chemical composition. With high-strength steels it is possible to build chains that will convey a load of 185,000 lb. and not exceed a weight of 16.5 lb. per ft. of chain.[14]

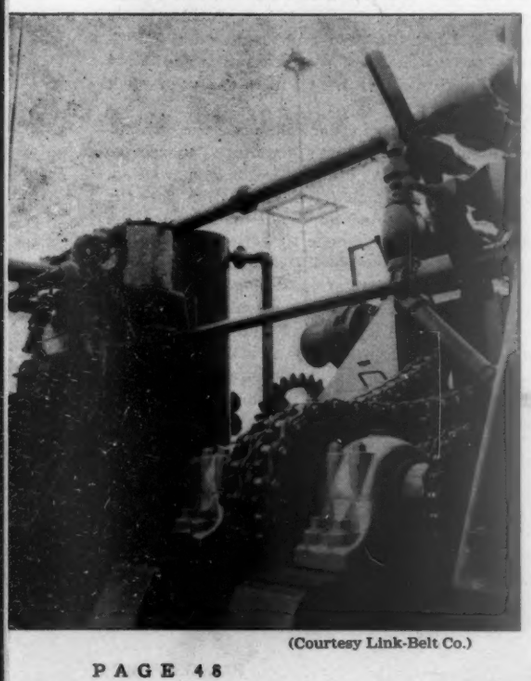
The speed at which the chain travels is sometimes in excess of 1,500 ft. per minute (25 ft. per second) and hence a considerable amount of "slapping" occurs at the sprockets. This action subjects the chain and particularly the rollers to severe wear and impact—and in some instances side thrusts and stresses which the chain is not ordinarily designed to withstand. All of these services combine to require a chain of exceptional strength and shock resistance and one that must at the same time be relatively light.

This article, as well as others which have appeared, is one of a number of such articles that will finally cover the entire industry from oil sand to filling station. The recommendations given herein are taken from various metal and equipment manufacturers.

TABLE 3—ROTARY AND HEAVY-DUTY CHAIN

Part—	Material or S.A.E. steel No.	Approximate composition, %* C	Mn	Cr	Ni	Mo	Physical properties Yield point	Elong. in 2"	Brinell hardness	Heat treatment
Side bars or links	3135-3140	.37	.7	.6	1.25	....	90,000	23	240	O.Q. 1,550° F.-Temp. 1,100° F.
	4135	.35	.75	.95	...	.2	115,000	21	230	O.Q. 1,600° F.-Temp. 1,100° F.
	6135	.35	.55	.95	...	(.18V)	95,000	22	230	O.Q. 1,600° F.-Temp. 1,250° F.
	5140	.40	.75	1.05	...	....	90,000	22	220	O.Q. 1,550° F.-Temp. 1,250° F.
Connecting pins	2512	.12	.45	..	5.0	....	.....	..	600+	Carburized
	2315	.15	.45	..	3.5	....	.....	..	600+	Carburized
	3245	.45	.45	1.0	1.75	....	140,000	18	330	O.Q. 1,500° F.-Temp. 1,000° F.
	4650	.50	.70	..	1.75	.25	140,000	18	320	O.Q. 1,550° F.-Temp. 1,000° F.
	6145	.45	.45	.95	...	(.18V)	135,000	17	320	O.Q. 1,600° F.-Temp. 1,100° F.
Bushings	2320	.20	.45	..	3.5	....	.....	..	600+	Carburized
	3115	.15	.45	.6	1.25	....	.....	..	600+	Carburized
	4615	.15	.55	..	1.75	.25	.....	..	600+	Carburized
	6115	.15	.45	.95	...	(.18V)	.....	..	600+	Carburized
	4650	.50	.70	..	1.75	.25	140,000	18	320	O.Q. 1,500° F.-Temp. 1,000° F.
Cotters for pins	2320	.20	.45	..	3.5	....	90,000	23	170	W.Q. 1,500° F.-Temp. 1,200° F.
Rollers	3140	.40	.65	.6	1.25	....	140,000	14	360	O.Q. 1,500° F.-Temp. 900° F.
	5140	.40	.75	1.05	...	....	135,000	14	330	O.Q. 1,550° F.-Temp. 900° F.

*Other elements as specified by the S.A.E. for these steels.



(Courtesy Link-Belt Co.)

Heavy-duty rotary chain used on hoist

To withstand high shear and impact stresses the pins are made from either oil-hardened and tempered steels containing 0.4-0.5 per cent carbon or case-hardening steels which contain a low amount of carbon (Table 3). The latter have greater wear resistance because of the hard wear-resistant case of high-carbon steel that is produced by carburization, but the oil-hardened steels are tougher or more shock resistant.

Much the same applies to the bushings, which really act as bearings, except that shock is not as important—and for this reason the wear-resistant carburized steels are preferred by most manufacturers. The service requirements of the side bars (links) and rollers is primarily one of strength and shock resistance and hence these parts are made of oil-hardened steel rather than carburizing steel.

Even the cotters for holding the pins in position must be dependable and hence they too are made of low-carbon oil-hardened steel that is particularly tough and shear resistant. This last service is an unusual one and is proof of the extreme service conditions that are encountered in the use of oil-field chain.

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Propane Versus Acetylene for Welding

Although the oil industry will not be glad to know that it costs more to weld when using propane rather than acetylene, it is always wise to know where one stands.

Competitive torch-cutting tests conducted at two structural steel companies in St. Louis gave results in all tests that are comparable with the representative test shown below:

DATA COMPETITIVE TESTS ACETYLENE VS. PROPANE

	Propane	Acetylene
Material cut, steel plate, thickness, in.	1	1
Linear inches cut	455	466
Oxygen consumption, cu. ft.	123.5	72.4
Fuel gas consumption, cu. ft.	9	8
Oxygen cost	$0.86	$0.51
Fuel gas cost	0.09	0.17
Oxygen fuel gas cost, total	0.95	0.68
Square inches cut	455	466
Sq. in. cut per cu. ft. oxygen	3.68	6.4
Sq. in. cut per cu. ft. fuel gas	50	58
Oxygen cost per 100 sq. in.	$0.189	$0.11
Oxygen and fuel gas cost, per 100 sq. in.	$0.21	$0.146
Oxygen cutting pressure, lb.	50	50
Fuel gas pressure, lb.	5	2.5
Cutting tip used	Harris #2P	Airco #2-124
Cutting speed, in. per min.	18	18

All cuts were made with the Airco radiagraph.

All gas cylinders weighed before and after using on silk scale graduated to ¼ oz. Range of scale, 300 lb., by ¼ oz.

It will be observed from an examination of the foregoing data that the same oxygen cutting pressure—50 lb.—was used with acetylene preheat as with propane preheat, and the radiagraph cutting speeds also were the same. Nevertheless the square inches of cut surface per cubic foot total oxygen produced with acetylene preheat were 74 per cent more than with propane. The tests made with same oxygen pressure and cutting speeds thus simmered down to a determination of the relative oxygen consumptions required to make the cut kerfs and to support the preheating flame combustions. Propane cuts a wider kerf than acetylene with tips having the same drill-size cutting orifices. This is due to the wider diffusion of heat from the multiple propane flames and the greater height of the tip above the steel compared to acetylene. The higher the tip the wider the kerf, and the greater the cutting oxygen consumption. Propane fuel also requires approximately three times the volume of oxygen through the torch as acetylene, the ratio being about 3 to 1 for propane as compared with 1 to 1 for acetylene per the same unit volume.

Taken from A.E.D. Bulletin, May 1939.

Propane as Gas for Welding and Cutting

Abstract: H. Burgel. Autogene Metallbearbeit, Vol 32, February 15, 1939, pp. 49-56. In German.

Systematic tests are described to find whether propane is suitable and economical for welding and cutting. Commercial propane has a specific gravity of 1.52 (air-1). The upper heating value is 23,700, lower 21,800 kg.-cal./m.³; its purity is usually 99.3-99.5 per cent. The tests showed that all nonferrous metals can be welded satisfactorily, of course with the necessary modification of the usual welding equipment to adapt it for propane. The gas can be used also for steel sheets up to 1 mm.; the welds are as good as with acetylene. For other steel sheets, acetylene is superior, but for small jobs propane is cheaper; the price (in Germany) is 0.70-0.80 RM for 1 kg. gas in bottles of 1.25-, 2.5-, and 5-kg., compressed to about 10 atm.

Translated and abstracted by "Metals and Alloys," June 1939.

Operating Ideas

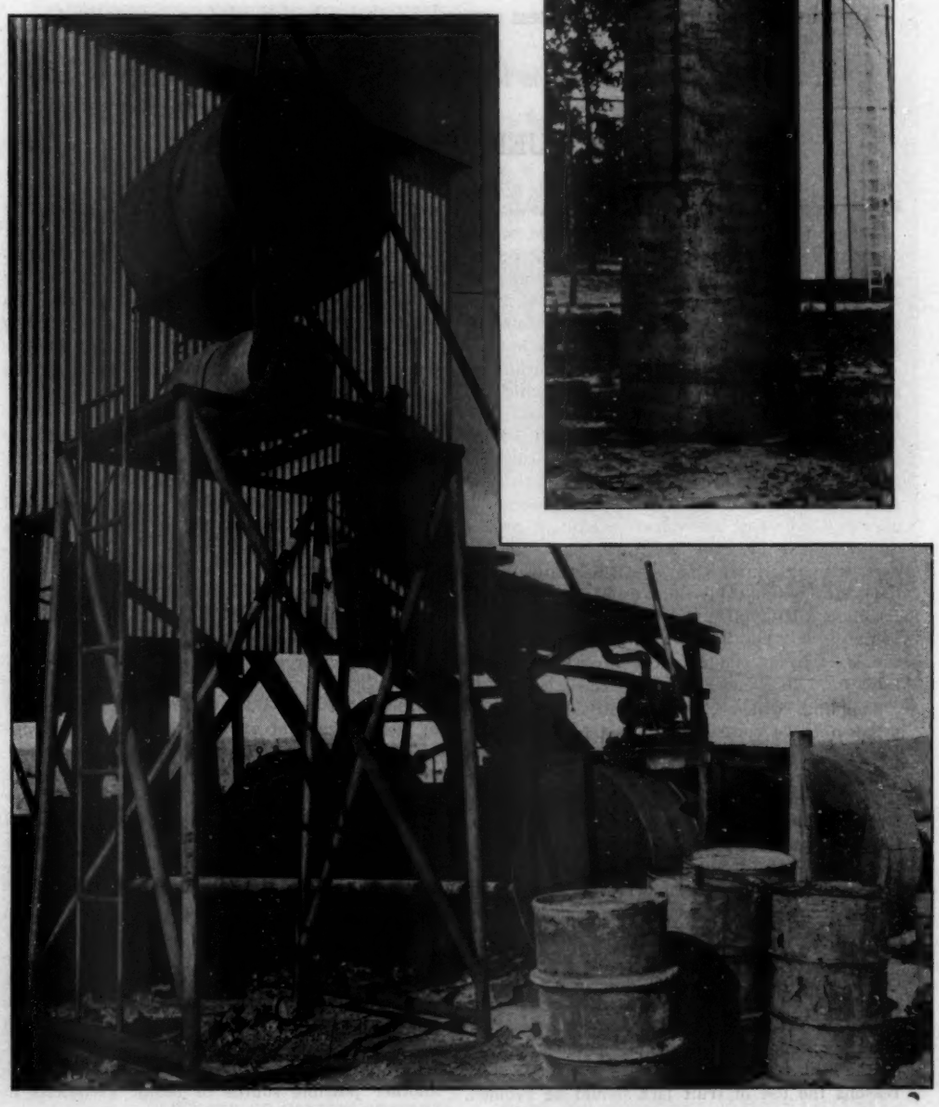
Silencing Noisy Muffler

Originally fitted with the usual 30° beveled end on the short exhaust pipe above the muffler, complaints were frequent regarding the excessive noise whenever the pumping unit was operated at night, especially as the nearest dwelling was only 15 ft. from the muffler and directly in line with the bevel. To cut down on the noise a flat plate was welded over the end of the pipe. It was supported by projections on the exhaust at a distance of ⅜ in. The ends carry outgoing gases in a number of flattened streams, broken up and separated by the projections carrying the

cover plate. The silencer plate also serves to protect the muffler and the power unit from rain, which otherwise would find its way down the exhaust during periods when the pumping unit is not being operated.

Conserving Gas Supply

Being practically without gas, Talco crude does give off a small volume when heated to the temperatures found desirable for breaking down emulsion. This gas, if conserved carefully, is enough to operate the heating unit of the treater, fire boilers, or operate gas engines used in some instances to pump the crude to storage tanks. One producer carries a 2-in. line from the top of the heater across the fire wall of the tank battery to a vertical receiver set in the adjacent woods. It is possible to store in this low-pressure unit sufficient gas to operate the lease. Checks in the line from heater to tank and from tank to points where gas is used prevent waste of gas and possible mixture of air which might cause an explosive substance in the storage reservoir.



Diesel Fuel Oil Tanks for Drilling Rig

One oil company drilling in the Sand Hills field of Crane County, West Texas, uses the tankage shown here for storing and supplying diesel fuel to its engines. Fuel from trucks is unloaded into the tank on the ground which acts as a storage tank. Fuel is then pumped, by means of the hand pump, up to the larger tank from which it gravitates into the one underneath. The engines take suction near the top of the smaller tank through a 1-in. line. By use of this installation, all sediments or water in the fuel is allowed to drop to the bottom of the smaller tank and will not enter the fuel line. Also, it is possible to pump a large amount of fuel up to a level where it will gravitate to the engines and yet not have the full pressure of this amount of fuel exerted on the fuel lines. The two platforms for supporting the tanks are made from old pipe, welded throughout as shown.

Some Practical Aspects of Fuel-Oil Testing

Concordant laboratory test results may only be secured when unusual care is taken when sampling the oil and after every step in the testing procedure is followed. Some pitfalls are outlined.

By BUELL O'CONNOR

THE purpose of this article is, first, to discuss the manipulative technique in regard to the customary tests applied to fuel oils and, second, to mention briefly the practical importance of the tests. The first point is of value in that many of the results obtained from these tests relate not to measurements of absolute properties but instead depend entirely on a specified arbitrary technique. Furthermore, for those tests which do pertain to measuring an absolute property, the manipulative technique is frequently of importance in controlling a variable which affects the magnitude of the property being measured. As for the second point, it is obvious that mere figures in themselves are valueless without proper knowledge as to what they are based on and even with this knowledge are still relatively unimportant without knowing to what extent the results can be applied. As for the required equipment, it will not be discussed, but will be assumed to be as stated in the Federal Specifications for Lubricants and Liquid Fuels.

Sampling, which chronologically is the first problem to be confronted, is the foundation on which the value of subsequent tests must rest. The sample must be representative; preferably it should not be taken where there is separation. However, if separation has occurred in the lot being sampled it is essential that adequate care be taken to insure that the sample be representative of the entire lot. To achieve this end the proper proportions of each phase must be taken, otherwise water and sediment results in particular are rendered useless. The type of container should be free from rubber gaskets since, by contact of the oil with the rubber, sulfur may be imparted to the oil. And, too, subsequent leakage resulting from the deteriorating action of the oil on the rubber may alter the flash point. For these reasons the use of fruit jars should be avoided. Once the sample is in the laboratory of the tester one must particularly consider two points. First, it is of the utmost necessity to vigorously shake the container, prior to sampling for each test, so that there is not only obtained a representative sample for the test in question but also the contents are left equally representative as to constituents for later tests. Another point recommended in the handling of the sample is to take the flash point first to prevent loss of volatile constituents.

The tests will be discussed individually. Proceeding to the Pensky-Martens closed-cup flash point, the consideration of the manipulative technique is of utmost importance. In regard to the flash point, the oil in the closed cup does not represent a system whereby the flash point (having pressure requirement set) is defined entirely by the temperature. Consequently, in order to obtain a reproducible flash point it is essential to regulate the other variables which alter the system. Instead of defining the flash point as the lowest temperature of ignition at a specified air-hydrocarbon ratio, reproducibility is more easily obtained by defining the point as the lowest temperature at which ignition occurs where the air concentration is such as derived from a specified minimum number of openings of the cup of fixed duration, and the hydrocarbon concentration is such as derived from a specified rate of temperature increase. Therefore it is imperative to exercise utmost caution to insure reproducible results. The average discrepancies in the uniformity in the speed of opening, the time remaining open, and the manner of shutting of the airtrap may cause errors of as much as 6° if too hasty, and of 2° to 4° if too deliberate. The first is explained by insufficiency of oxygen, the latter by escape of hydrocarbons. A discrepancy in the rate produces even greater errors. For example, a rate of even 13° or 14° per minute may result in errors of 4° too low, while increased rates distort values even more. The error induced by slower than required rate is less and gives measurements in excess of the true flash point. This effect of rate of change of temperature on flash point values may be explained by resulting variations in temperature gradients. Other discrepancies may be caused by having the torch flame of improper size; slightly too large may give readings in the neighborhood of 2° too low, and too small a torch flame reading up to 4° too high. Also improper speed of rotation of the stirrer is another possible source of minor variations in values. Likewise errors of 1 or 2 per cent in volume may result in slight negative discrepancies if volume is too great and corresponding ones if volume too small. Further, since any bubbles will raise the vapor pressure of the oil, one is required to remove them even though more bubbles will soon re-form if water is present. And, in conclusion, it is obvious that the apparatus should be free from volatile washing fluid.

In contrast to flash-point determinations the measurement of viscosity involves the control of fewer variables, chiefly temperature and method of stirring. By adequately controlling temperature one can easily come within 1 per cent reproducibility. Otherwise errors of several per cent may result from even such small differences as 0.1° from the required temperature. First of all, the thermometer must be read with care to avoid parallaxes, and the proper correction applied. Secondly, temperature gradients of the oil in the viscosity tube should be minimized by thorough stirring. The existence of small gradients will alter the true viscosity. It is also advisable to effect a temperature equilibrium as soon as possible; sometimes one is assisted in stabilizing the temperature by slight changes in the bath temperature within the specifications. When once stabilized the operator should proceed rapidly in draining the overflow cup and starting the flow from the tube. As adopted by A.S.T.M. in 1936, one should drain the gallery from one point only, as in moving around to more completely drain it, one may cause small error up to 0.5 per cent. Perhaps this difference is caused by altering the overflow motion which changes the head. Other points present little difficulty except that owing to the effect on viscosity of eddies, which are caused by rapid drainage, the limits of the tubes should not be exceeded. For Saybolt Furol, times must not be less than 25 seconds and for Saybolt Universal less than 32 seconds. It is rather obvious to point out that the surface of the outlet should not be injured nor the top of the oil tube dented. Consequently, it is preferable to avoid entirely contact with the orifice and care should be used in touching the top of the tube in stirring the oil. The synchronization of removing the cork and starting the stop watch, a procedure which is aided by a jerking motion rather than a pulling one, is readily attainable with short practice. As for cleanliness of the tube and the avoidance of excessive preheating, these points are so obvious that they will be passed over without comment.

Measuring Carbon Residue

In contrast to the problems raised in closed-cup flash points and viscosities, those related to measuring carbon residue are of practical instead of theoretical in nature. In preparation to run carbon residues, water and sediment are removed. However, in the light of a possibility for future consideration, the suggestion is offered that water and sediment be removed only when present in sufficient amounts to cause bumping. Not only would the procedure be simplified, but also the results would measure the carbon-forming tendencies of the oil as it exists in contrast to measuring a hypothetical oil with part of its constituents removed. The removal of water by distillation results in altering the sample by heating and also in loss by leaving material adhering to walls of flask. On the other hand, removal of water by centrifuge results in the concurrent loss of emulsified oil in the water layer. This loss is important as quite likely this separated oil fraction is higher in potential carbon residue content. Hence the above explains the suggestion for water being removed only when necessary to prevent bumping, an occurrence which is readily detectable by

the ensuing gurgling sound. However, the main problem encountered in running this test relates to the size of flame to be used. After having filled crucibles to proper weight and having centered them, one is ready to consider this point. The specifications for carbon residues are purely arbitrary on the time limits and are not specific regarding size of flame to be employed other than to secure the required time results. Apparently there exists a rough correlation between the size of flame and the flash point together with the viscosity. The shade of red, both of the nichrome wire triangle and the sheet-iron crucible, as well as the flame itself, serve to assist one in determining the setting for the burner. A specific description of these variations or graduations will not be given, as individual differences, both in the equipment and in the gas employed as fuel, will account for each set-up having its own characteristics. The possibility of attaining the required limits on extensive number of samples without altering the flame is remote. Therefore to increase the percentage of tests within the required time limits, it is convenient to adjust flame slightly below estimated norm and then at approximately 7 minutes 30 seconds to increase the flame. This technique is of considerable aid. Its effect on the weight of carbon residue is unquestionably less than the allowable experimental error. The exact effect is difficult to ascertain as duplicate samples apparently run under equivalent conditions will sometimes vary more from each other than duplicates which are at opposite ends of the limits. Owing to their nature, precise conclusions pertaining to the ignition and burning times are not being offered, but from experience it has been noted that the manner of burning exerts a greater influence than the manner of preignition. The latter seems important chiefly as it conditions the former. Burning times beyond the limits tend to induce increased values, while shorter than required times cause an opposite effect. Regarding the burning, frequently by simple adjustment, some samples will burn between the bridge and the top of the chimney. At other times one has great difficulty in achieving the supposedly possible correct burning. In such cases it is advisable to regulate the flame slightly below the expected norm and then after 10 minutes to increase the flame to nearly full force. Another problem occurs in the identification of the exact point where smoke ceases to be emitted. The complication results from the fact that the change is somewhat gradual in character rather than of the desired instantaneous nature. However, the point should be capable of designation within a space interval of 10 seconds. A practice helpful in meeting this problem is to catch one's time at the point where the smoke first fails to appear even though a faint gust may follow later. The remarks on carbon residues may best be concluded by stating that the problems here presented may be met most satisfactorily by frequent contact with the actual running of this test.

The problems involved in the remaining tests to be discussed are less intricate. The analysis for sulfur by the bomb method is straightforward. Besides the prerequisite necessity of quantitative technique, there are a few points pertaining to the bomb itself to be considered. Among these, first, is care not to short-circuit the wire to the crucible, thus causing possible incomplete combustion, which is evidenced, upon opening the bomb, by a black film. In such cases the test must be repeated. Another point relates to the charging and discharging. Both should be done gradually; in the former, to avoid splashing, resulting in incomplete combustion; and, in the latter, to avoid violent agitation resulting in spray formation and subsequent loss of sulfur constituents in the vapor phase. In transferring the contents of the bomb to the beaker, one must wash thoroughly the entire area of any surface enclosed in the bomb and at the same time avoid losses. The rest of the test, after the application of bromine, proceeds strictly along routine quantitative analysis for determination of sulfur. Consequently, with care exerted in the preliminary stages, the deviation is well within 0.05 per cent.

In case of water and sediment, other than securing a representative sample—a point which can't be overemphasized—slight errors may result from improper solvent action caused by excessive or insufficient heat and undue delays allowing additional dissolving of asphaltic material. As for ash determinations, it is helpful in oxidizing carbon, which may have been entrapped during ashing, to use dilute nitric acid evaporate and then re-ash to constant weight. The determination of sediment is straightforward. The thimbles should be discarded when they become plugged. Lastly, as for the copper strip corrosion test at 212° F., it is important to have the test tube clean, the copper strip evenly polished, and after removal to clean strip by washing towards one's fingers, thus reducing likelihood of contaminating the test.

As for the importance of these tests, their basis as to what one is seeking to measure is rather evident, but there is difficulty in determining the extent of their application together with their interdependency. The fact that fuel oils from different crude stocks will yield different sets of correlations when tests of a fuel oil from any one stock are correlated together, prevents any simple classification of oils from one composite view of the results of these tests. Consequently, though one finds these tests useful, one cannot

(Continued on Page 56)

Why is it you so seldom see strainers ahead of Armstrong Steam Traps?

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Gentle reminders to the workmen as they arrive each day that their tasks are accompanied by considerable danger, are often helpful in reducing the number of accidents on producing leases.

The sign, illustrated here, is at the entrance to the field office of a major oil company near Stoy, Ill. The larger board contains a sonnet which may not be a literary gem but which certainly is a pointed reminder to the arriving men.

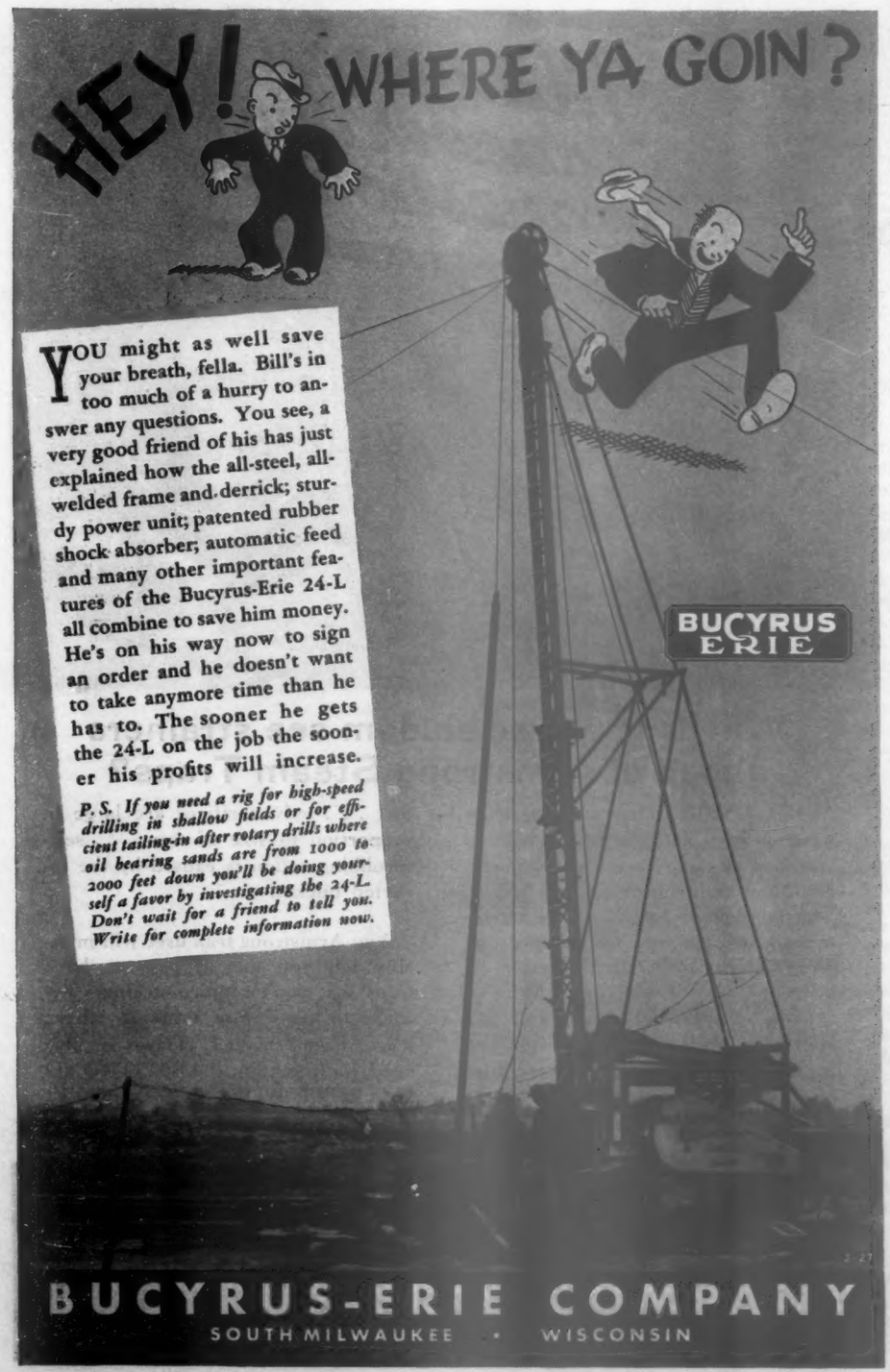
Over the sonnet another board tells how many days have passed since a workman suffered a lost-time accident; in this case it was only 378 days but the operators are optimistic about again building it over the 1,000-day mark.

In several cases they have had several thousand days chalked up before misfortune overtook a man. The accidents were in no case serious but the workman lost some time.

This is an old producing property and the lease workers have been employed in this one district for a number of years. In some instances they are men past middle age who have worked at no other job. Most of them have saved their money and have few or no financial worries. During their

long years of service they have learned what to do to avoid getting hurt and they are satisfied with their jobs and not mentally upset.

Safety and first-aid meetings are held regularly and any defective equipment is reported; potential sources of accidents are discussed and methods of eliminating the dangers are proposed by the workmen. The rare occurrence of an accident on this type operation is very helpful in reducing the petroleum industry's accident rate.


HEY! WHERE YA GOIN?
YOU might as well save your breath, fella. Bill's in too much of a hurry to answer any questions. You see, a very good friend of his has just explained how the all-steel, all-welded frame and derrick; sturdy power unit; patented rubber shock absorber; automatic feed and many other important features of the Bucyrus-Erie 24-L all combine to save him money. He's on his way now to sign an order and he doesn't want to take anymore time than he has to. The sooner he gets the 24-L on the job the sooner his profits will increase.
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TESTING FUEL OIL

(Continued from Page 55)

rely solely on them for furnishing a complete picture as to what an oil is or exactly what one may expect from it. However, it may be said that these tests are an aid in the classification of fuel oils and offer some information of performance to be anticipated. The utilizations of the tests are usually evident. For example, the Pensky-Martens closed-cup flash point is designed to apply to fuel oils which are retained in closed containers. Thus is afforded fire-hazard data as well as information for the general handling of fuel oils. Viscosity measurements, besides providing for a convenient separation into classes, are useful for properly meeting necessary changes in fluidity requirements due both to seasonal temperature variations and also to different requirements for various types of engines and burners. As for carbon residues, these measurements are helpful in predetermining the tendency of the oil toward hard-carbon formation as opposed to soft deposits. The conditions of the test demonstrate what the oil will do when exposed to oxidation at high heats in presence of oxygen insufficiency. The result is a baking process leaving a residue which is inclined to resist removal during operation of the equipment in which the oil is being used. On the other hand, ash determinations give the incombustible matter present when there is excess oxygen. As for sediment, one gains a knowledge of the possibility of plugging of filters, lines, and spray nozzles. Water and sediment, water, sulfur, and copper-strip corrosion, all reveal the tendency toward corrosion. However, in closing, it is well to point out that these tests are merely approximations of working conditions owing to the fact that there are additional factors in actual operation giving rise to the problems for which these tests were designed to assist in solving. Hence, it must be emphasized again that these tests should not be applied beyond their limits.

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"Flex-Set" Preformed YELLOW STRAND

Vapor-Phase Cooling

... for Internal-Combustion Engines

By J. H. WALLACE and R. A. NEWTON

Pacific Enterprise Products, Inc.

C. N. G. A.

Delivered before California Natural Gasoline Association, Long Beach, Calif., August 3.

J. H. WALLACE

R. A. NEWTON

VAPOR-PHASE cooling is the name applied to a novel method of jacket cooling for internal-combustion engines. Since the system is merely a means to an end, that is, removing waste heat from the jackets, and since its advantages or disadvantages, as the case may be, are directly related to the thermal conditions within the cylinder, we will make a brief review and analysis of these conditions.

Temperature of the cycle.—In dealing with the thermal conditions of the cycle we are considering only four-cycle explosion-type engines, although the same general principles will hold true in the two-cycle engine and in engines of the diesel type.

Fig. 1 is a graphic representation of the combustion within a typical four-cycle explosion-type cylinder. The lower curve shows pressure-time relationships, while the upper curve shows the temperature-time relationships within the cylinder. In the case of the temperature curve the intake air is assumed to be at 60° F. or 519° A. In general, the temperatures will, therefore, be approximately as follows for full load—approximately 100 lb b.m.e.p.

TABLE 1—TEMPERATURE IN ENGINE

	Deg. F.	Deg. A.
Intake air	60	519
End of suction	155	614
End of compression	800	1,260
Firing	4,000	4,459
End of expansion	2,588	3,047
End of exhaust	1,641	2,100

The average mean temperature between combustion and expansion is approximately 3,800° A., or 3,340° F.

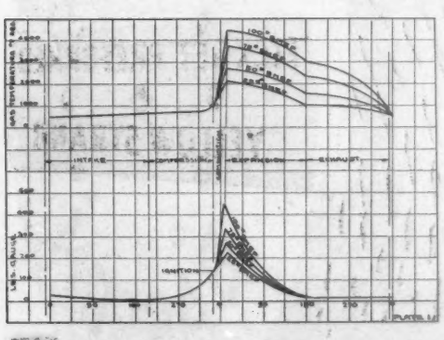


Fig. 1—Graphic presentation of combustion conditions in a four-cycle engine

Heat distribution.—Of the total heat units in the fuel, the approximate distribution is as follows, assuming 11,000 B.t.u. per full load hp.

TABLE 2

	Per cent	B.t.u.
To brake horsepower	26	2,860
To engine friction	6	660
To radiation	6	660
To exhaust	34	3,760
To jacket water	28	3,060
	100	11,000

Note: This approximate distribution applies to engines between 4 and 6-in. bore and operated at speeds of approximately 1,000 piston ft. per minute and mean effective pressures of approximately 80 lb., and with air-cooled manifolds. This balance varies somewhat for slow-speed engines, and, in general, the amount of heat rejected to the cooling water decreases with the diameter of the bore and the speed of the engine. In the case of extremely slow-speed engines, the total rejected to the jackets may be 35 per cent.

Of the above 28 per cent shown as rejected to cooling water, the amounts rejected during the different parts of the cycle are as follows:

TABLE 3

	Per cent of total	Per cent of jacket heat
Combustion, to the head	6	21
Expansion, to the walls and head	7	25
Exhaust, to walls and head	15	54
	28	100

Wall temperatures within the combustion chamber.—Various observers show metal temperatures running from 300° to 450° F. on the surface of the metal of the combustion chamber, and dropping almost immediately to approximately water temperatures in the lower cylinder walls. In can also be proved analytically that it is impossible for the wall temperatures to exceed the boiling point of the liquid by more than 50° to 75° F. ("Heat Transfer in Evaporation and Condensation," by Max Jakob, Mech. Eng., Oct. 1936). It can also be shown that due to heat concentration of from 50,000 to 150,000 B.t.u. per sq. ft. per hour which occur in the upper combustion chamber, the water can only remove

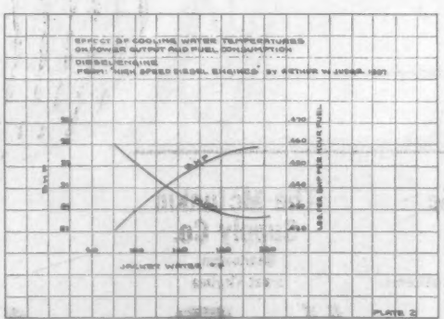


Fig. 2—Effect of cooling-water temperatures upon the efficiency of a diesel engine

this heat by ebullition on the water surface of the metal. Water can only absorb between 200 and 250 B.t.u. per sq. ft. per degree F. per hour under the best of conditions, and the necessary rate (allowing 20° F. differential for the water) is from 10 to 15 times this amount. Therefore, the upper jackets and the heads are at boiling temperature regardless of the temperatures of the main body of water.

It is frequently assumed that the lower the jacket-water temperature, the greater the rate of heat transfer through the head walls and liner walls. However, Ricardo shows the following conditions to exist:

CONDITION NO. 1—220° F. JACKETS

	Deg. F.
Average gas temperature of combustion chamber	3,300
Jacket temperature	220
Difference	3,080

CONDITION NO. 2—70° F. JACKETS

Average gas temperature of combustion chamber	3,300
Jacket temperature	70
Difference	3,230
Gradient condition No. 2	3,230
Gradient condition No. 1	3,080
Gradient differential	150

Since the rate of heat flow is directly proportional to the differential, the increase in rate from 220° jackets to 70° jackets would be 3,230/150 = 2.15 per cent. However, we have shown above that the liner temperature cannot be less than 212° regardless of the jacket-water temperature; therefore, the assumed condition of 70° jackets can never exist.

The above conditions, however, exist only through that portion of the stroke which accounts for approximately 13 per cent of the total heat distribution to the jackets, so again it can be seen that jacket-water temperature alone has little or no effect on either the rate of heat absorption by

(Continued on Page 63)

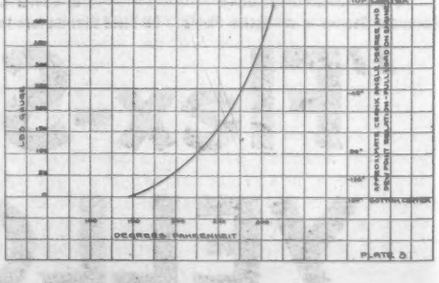


Fig. 3—Dew points of water in perfect combustion as expressed by relationship of temperature and pressure

VAPOR-PHASE COOLING

(Continued from Page 58)

the jacket water or upon the maximum temperature of the combustion chamber.

The surface temperatures of the liners and heads, it has been shown, are not greatly affected in the points of high heat concentration by the temperature of the water. Of far greater consideration is the condition of the head and liner surface. Slight, almost microscopic films of scale, oil, or grease raise the surface temperatures from 20° to 100°

Liner distortion.—Let us assume a conventional engine with jacket water entering at 120° F. and leaving at 140° F. The upper portion of the combustion chamber consisting of the heads and upper one-fourth of the liner will have an inside temperature of approximately 312° F. with a water temperature of 212° F., or an average temperature of 267° F., whereas the lower section of the liner will have a temperature of approximately 130° F., or a total temperature difference in the length of the liner of 137° F. Should, however, the jacket water enter at 210° and leave at 230°, the average temperature of the lower liner would be 220° or a total difference of 56°. Since the distortion of the liner is directly proportional to the temperature difference, it is apparent, therefore, that under this latter condition there will be less than one-half the normal liner distortion or taper due to temperature.

Thermal efficiency of the Carnot cycle.—The thermal efficiency of the Carnot cycle is the ratio of the total heat units available in the fuel which can be transferred into mechanical energy. Since all temperatures so far as thermal calculations are concerned are taken from absolute zero, it is obviously theoretically impossible to have any engine 100 per cent efficient. In order for such a theoretical condition to exist, it would be necessary for the final temperatures of the complete cycle to be minus 459° F. Therefore, the maximum theoretical efficiency would be when all conditions returned to the normal temperature, which we assume for most calculations to be 60° F., or 519° A. Solving for this value, where E is thermal efficiency, T_1 is the initial temperature, and T is the final temperature, the equation then is E equals $1 - (T_1/T)$. Assuming T_1 is 60° F., or 519° A., and T is 1,617° F., or 2,076° A., we get E equals $1 - (519/2,076)$ or $1 - (1/4)$ equals 0.75 or 75 per cent. Therefore, the maximum efficiency which could be reached would be only 75 per cent, and this assuming a frictionless engine with no heat loss and final exhaust temperatures of 60° F.

The only method of increasing this efficiency would be to increase the maximum temperature T which is done in the case of supercharged engines. It is frequently erroneously assumed that the loss of heat to the jackets represents a real loss in thermal efficiency. This, however is not the case, for a large part of the heat that goes to the jackets goes after the piston is in a position where no useful work can be performed. Referring again to Table 3 of jacket-water heat distribution, it will be seen that 13 per cent is dissipated during the combustion and expansion stroke, the latter half of which stroke is of little mechanical value. Therefore, let us assume that all jacket-water heat dissipation was eliminated. Available then for useful

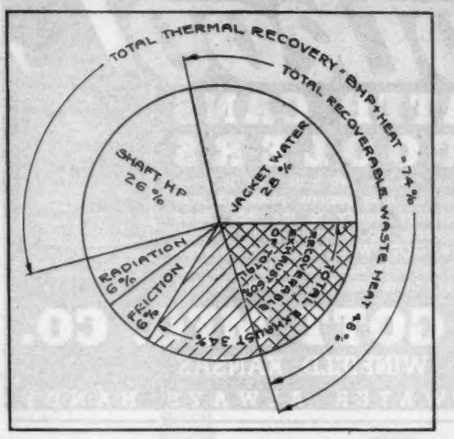

TOTAL THERMAL RECOVERY - BHP + HEAT = 74 %
TOTAL RECOVERABLE WASTE HEAT = 48 %
JACKET WATER 26 %
SHAFT HP 26 %
RADIATION 6 %
FRICTION 6 %
EXHAUST HEAT 34 %

Fig. 4—Heat distribution showing possible heat recovery

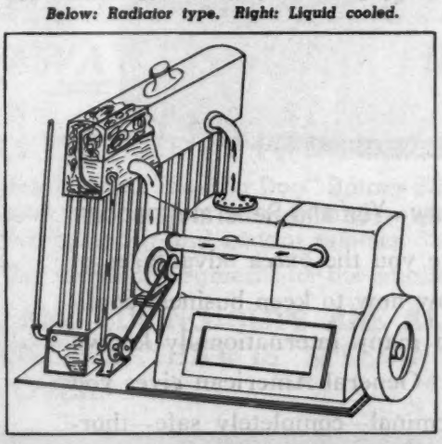
work would only be the 6 per cent during combustion and approximately 4 per cent during expansion, making a total of 10 per cent of the total available heat even with these impossible conditions which assume wall temperatures of 3,800° F. Actual savings can be shown to be in the neighborhood of one-half of 1 per cent. Thus it can be seen that the rate of jacket-water heat dissipation is of little consequence in the thermal efficiency.

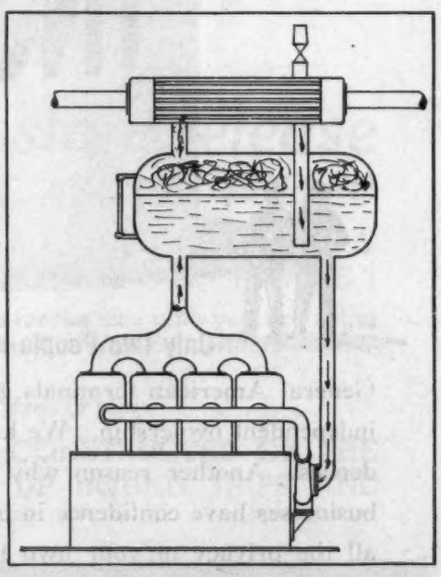
Effect of temperature on mechanical efficiency. The fact that there is an apparent increase in efficiency on the dynamometer is due to the reduction of mechanical losses due to piston drag. Ricardo shows that the difference in effective brake horsepower output of the conventional type of engine may vary approximately 8 to 10 per cent with the change in jacket temperature. In other words, approximately 10 per cent more useful work can be obtained with high jacket temperatures which reduce oil drag. (See Fig. 2.)

Effect of temperature on volumetric efficiency.—Volumetric efficiency is affected by the temperatures of the gases during the suction stroke. In the case of gasoline engines it is necessary to heat the induction system for the purpose of volatilizing the fuel. In the case of engines using a gaseous fuel such heating of the induction system is unnecessary; therefore, greater volumetric efficiency is obtainable with cool induction systems. The effect on the volumetric efficiency is approximately proportional to the temperature of the air in the induction system. The possible difference between the air and gas entering at say the maximum jacket temperature (212°) and the available ambient air temperature (60°) is approximately 5 per cent. It would, therefore, seem that with the average natural-gas engine the greatest possible volumetric loss would be 5 per cent with a mechanical gain of approximately 8 per cent, leaving a net gain for high-temperature jackets of approximately 3 per cent, which again is a negligible quantity. The volumetric efficiency will affect only the maximum b.m.e.p., and since most engines operate below their maximum, it is of no consequence.

Products of combustion.—Practically all explosion-type engines utilize hydrocarbons for fuels. During combustion the carbon burns to carbon dioxide and carbon monoxide, the hydrogen to water and the sulfur to sulfur dioxide. Fig. 4 illustrates the products of combustion of three typical types of fuels; namely, gasoline, California natural gas, and sewer gas. The latter is composed of approximately 90 per cent methane, 0.5 to 1.5 per cent sulfur in the form of hydrogen sulfide, and the balance carbon dioxide, carbon monoxide, nitrogen, and other hydrocarbons. The figures for sewer gas are based on methane. Of the products of combustion we are concerned primarily with water and sulfur dioxide. We all realize that a large amount of water is formed, but few of us give enough weight to this item. As shown on the table, there is approximately 1 gal. of water per 10 b.hp.-hr. When we consider this amount of water which is in the form of steam in the combustion chamber, we realize that the internal-combustion engine is a partial steam engine. The bearing that this water has upon the mechanical life of the engine and upon the lubricating-oil condition is of the utmost importance.

It is frequently assumed that this water passes





Figs. 5 and 6—Types of vapor-phase cooling systems. Below: Radiator type. Right: Liquid cooled.

TABLE 4—PRODUCTS OF COMBUSTION OF THREE TYPICAL ENGINE FUELS

Fuel—	Lb. air per lb. fuel vapor	Cu. ft. air per cu. ft. fuel vapor	B.t.u. per cu. ft.	Products of combustion—Lb. per lb. fuel: CO_2	H_2O	N_2 bal.	Products of combustion—Lb. per cu. ft. fuel: CO_2	H_2O	N_2 bal.	Products of combustion—Lb. per 1,000 B.t.u.: CO_2	H_2O	N_2 bal.	H_2O in gal. per cu. ft. fuel	H_2O gal. per 1,000 B.t.u.	H_2O gal. per 11,000 B.t.u. = 1 hp.-hr.
Gasoline	15.07	59	5,572	3.09	1.42	11.68	.91	.42	3.4	.162	.075	.62	.05	.009	.099
Natural gas	18.0	12	1,100	3.14	1.29	11.42	.225	.80	.83	.205	.073	.76	.096	.088	.96
Sewer gas (methane)	17.30	9.6	800	2.75	2.25	13.32	.118	.094	.56	.127	.104	.63	.012	.013	.142

Note: Approximately 1 gal. per 100 b.hp.-hr. Volume at 14.7 lb. abs. and 68° F. (Streeter, "Internal-Combustion Engines").

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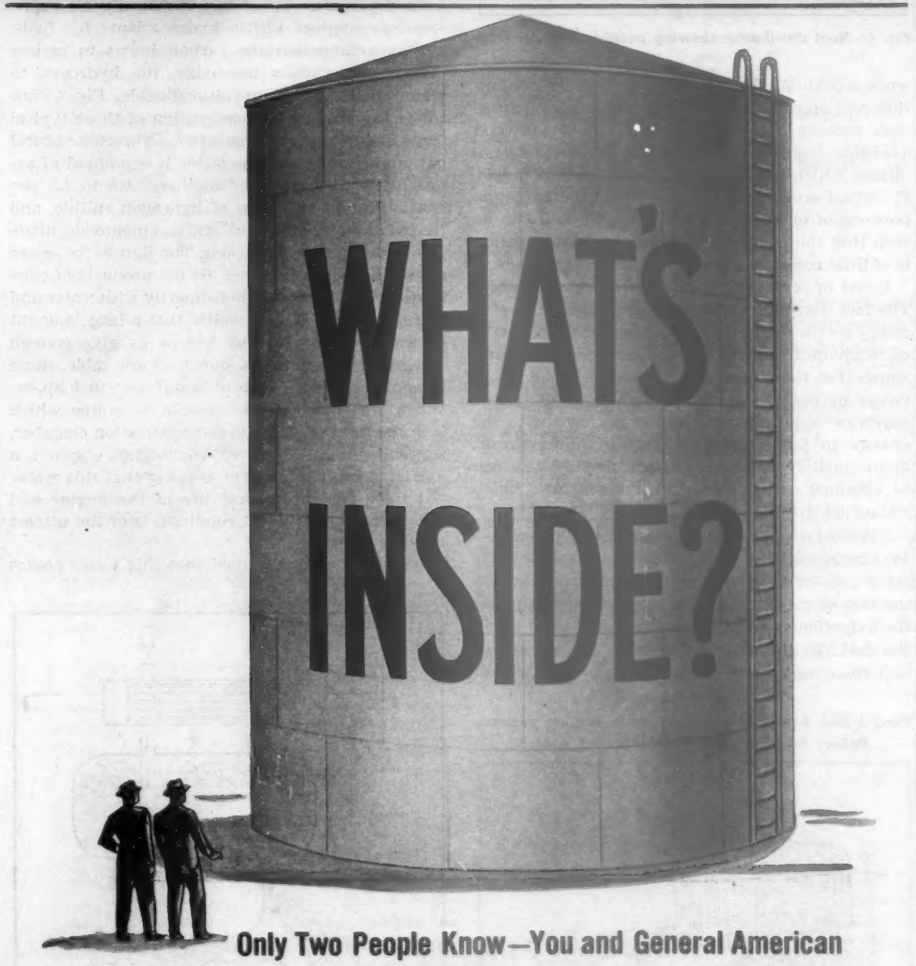

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out the exhaust as steam. Such, however, is not entirely true. A portion may be deposited on the cylinder walls, depending upon their temperature and the pressure within the engine. " When a gas containing liquid vapor comes into contact with a surface at or below the dew-point temperature of the vapor, the vapor will condense upon the surface regardless of the temperature of the gas."

It is, therefore, evident that an analysis of the dew points of the products of combustion is essential. Fig. 3 shows the curve for dew-point temperatures and pressures of the average products of combustion of natural gas.

Effect of jacket temperature on moisture condensation.—It becomes apparent then that as the piston descends the products of combustion containing water come into contact with a surface which is equal to or lower than the dew point. Under these conditions condensation takes place upon the liner walls. At the bottom of the expansion stroke when the piston starts up, the temperatures are still further lowered and the deposited moisture remains on the walls to be scraped off by the piston ring and intimately mixed with the film of oil forming an emulsion, and the subsequent firing causes blow-by, driving this mixture of water and oil (sludge) down into the crankcase from where it is difficult to remove. In addition, practically all hydrocarbons contain small amounts of sulfurous compounds which burn to sulfur dioxide and sulfurous acid, in itself harmless, but having an affinity for moisture. Hence, as the moisture is deposited upon the walls such sulfurous acid as may be present is immediately absorbed by the water forming an active acid. Not only is this acid harmful to liners, rings, and pistons, but it is an ideal emulsifying agent and tends to form an extremely stable emulsion. Experience with engines operating on sour gas (gas containing a fairly large percentage of sulfur dioxide, etc.) has shown that severe sludging takes place. This sludge in addition to destroying the lubricating properties of the oil causes gumming and sticking of the rings, fouling of the oil passages, and also acts upon the bearing surfaces, etching, and corroding them. The action of engines operating on sour gas is merely the accelerated action that would take place in normal natural-gas-burning engines, but over a considerably longer period of time. We have found that by increasing the jacket-water temperature less sludge results. Some have attributed this reduced sludging to increased crankcase temperature, it being argued that at the higher temperatures the water is, or tends to be, removed from the crankcase through the breathers. While increased crankcase temperatures may tend to have this action, it is our opinion that it is of negligible value and that the decreased sludging from engines operating at higher temperatures comes almost entirely from the fact that less moisture is deposited on the cylinder walls, and hence less moisture is present in the crankcase.

Summary of Heat Conditions

We have attempted to show, first, what actual temperatures exist in the various parts of the cycle; second, the heat distribution or in what manner the heat taken in as fuel is distributed to useful and to waste energy; third, what wall temperatures actually exist; fourth, the effect of varying jacket-water temperatures on the thermal, mechanical, and volumetric efficiencies, and, fifth, what products result from combustion and their effect upon the engine.

To summarize briefly, we find that we have combustion temperatures of approximately 4,000° F. with a mean temperature during the combustion and exhaust period of approximately 3,300° F., that of the total heat content of the fuel approximately 26 per cent represents shaft horsepower, 40 per cent represents friction, radiation and jacket dissipation, and 34 per cent represents exhaust waste.

We have also attempted to show that with cooling jacket water at atmospheric pressure, approx-

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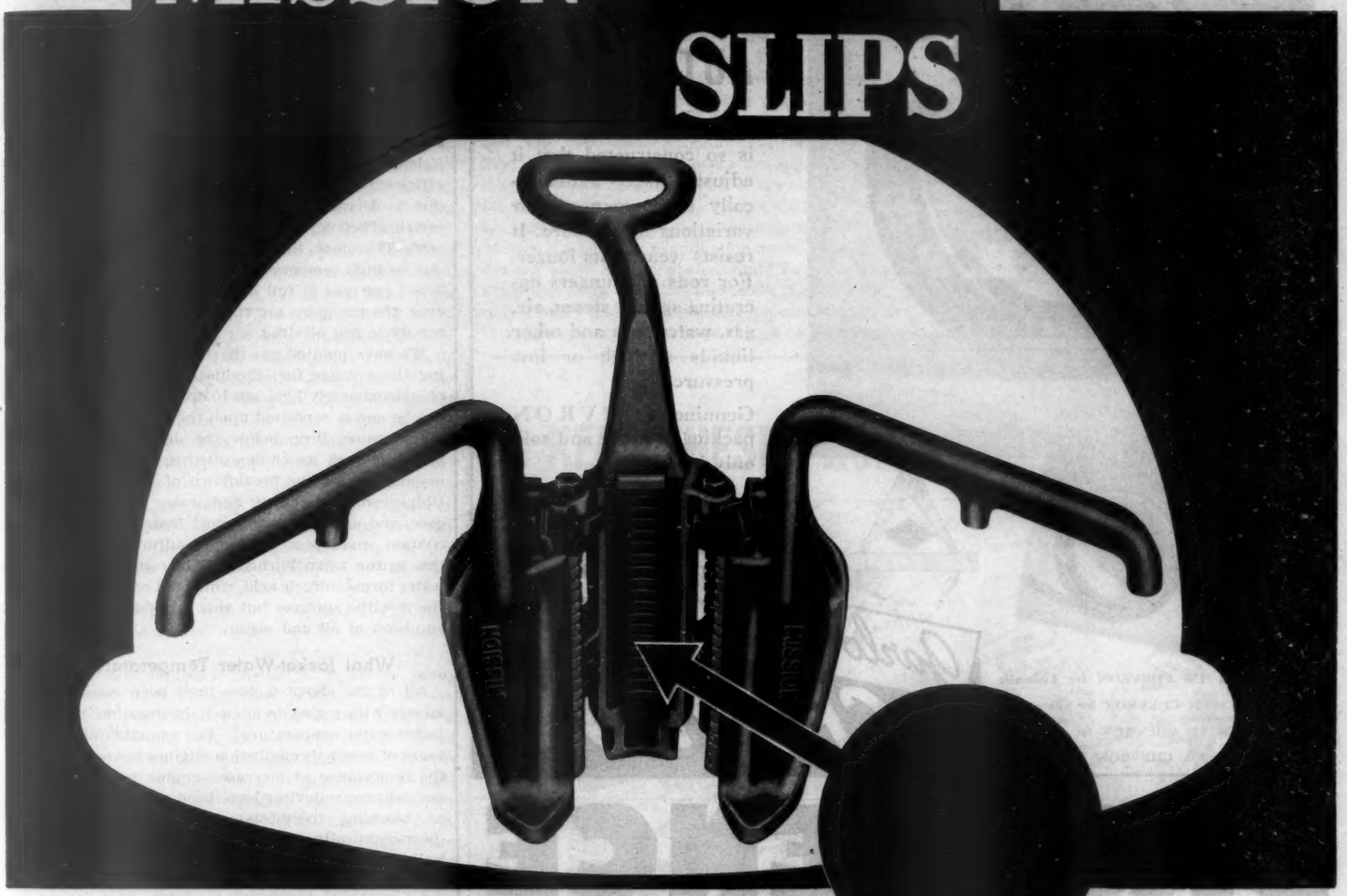

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imately 300° F. is the maximum metal temperature which exists within the combustion chamber, and that this temperature drops within the first 30° of piston travel to approximately the mean water temperature of the jackets. We have further shown that the mechanical distortion of the liners is approximately one-half where the entering water is at the boiling point.

We have also shown the effect of varying water temperatures on the thermal, mechanical, and volumetric efficiencies and find that the effect of jacket temperatures can only raise thermal efficiency at best by 1 per cent, that mechanical efficiency can be increased from 5 to 10 per cent due to decreased piston drag, and that the volumetric efficiency is decreased approximately 5 per cent. Therefore, the net gain in overall efficiency due to high temperatures can at best not exceed 3 to 4 per cent at full load. At partial loads, however, the net gains are surprisingly high, due primarily to less oil drag.

We have pointed out that the gas engine burning the average fuel produces water at the rate of approximately 1 gal. per 10 hp.-hr., and this water can be and is deposited upon the liner walls when temperatures drop below the dew point of the mixture; such water deposited upon the walls is responsible for the breakdown of the lubrication film, crankcase sludge, and water in the crankcase, and also that since most hydrocarbon fuels contain small percentages of sulfur compounds, this sulfur when burned and in connection with water forms sulfuric acid, which not only acts upon the metallic surfaces but aids in forming a stable emulsion of oil and water.

What Jacket-Water Temperature?

All of the above factors have been considered merely with a view to answer the question, "What jacket-water temperature?" For a number of years users of internal-combustion engines have realized the importance of increased engine temperature, and numerous devices have been resorted to, such as blocking thermostats, bypass thermostats, thermostatically controlled shutters, thermostatically operated fans, and manual shutter controls. Of these the only systems which have gained much use have been the thermostats in the circulating water system. In the case of a purely blocking type of thermostat, the jacket temperature at discharge is maintained high, but a small amount of water is cooled and admitted, making the temperature gradient across the engine relatively high and producing lower liner-wall temperatures. Each of the systems has very definite advantages, and all tend towards high jacket temperatures.

However, to be 100 per cent effective, it is necessary that jacket temperatures be at about the boiling point of water, or 212° F. It is impossible with a normal circulating system to arrive at these temperatures, because of the constantly accumulating bubbles of steam which form a constant evaporative loss to the system and also which tend to be entrapped in the pump, causing vapor lock, with the resultant reduced rate of circulation and subsequent increase of steam formation. Further, all automatic controls based on thermostats have been a source of continual mechanical trouble. While these systems are a great help, they leave much to be desired. Several systems have been devised to overcome certain of these difficulties. One method is to provide an auxiliary condenser to separate the steam formed from the water and let this condensed steam return to the system. This does away with difficulties of loss of water and pump lock, but temperature control must again depend upon the unreliable thermostat. Several systems known as evaporating or steam cooling have been developed. These systems involve the maintaining of a level of water within the engine jacket by divers means and the removing and condensing of the steam formed within the jackets. In these systems, known as steam cooling, the entire jacket heat is removed through the latent heat of vapor-

ization of the water in the jackets. Such systems fail in one vital point; that is, the cooling liquid circulation is not sufficient to prevent the formation of steam or large steam bubbles, and hot spots are formed. The temperature within the steam bubble may be considerably higher than that of the boiling point of water itself. To offset these various disadvantages our company has developed a system of cooling known as "Vapor Phase" cooling. This system consists essentially of a chamber known as a flash chamber into which the water from the jackets is circulated and from which chamber solid water is drawn and recirculated back to the jackets by means of a pump. This system is so arranged that the pump is under a constant head and circulates a normal amount of water. This circulation rate is based upon maintaining temperature differences not to exceed 20°, which is approximately 0.4 of a gallon per minute per brake horsepower-hour. The cooling liquid is circulated by the pump through the engine jackets and through the flash tank and returns to the pump with no appreciable cooling taking place except such unintentional cooling as may take place through radiation of the tank and lines. It is apparent, therefore, that the total body of liquid is rapidly increased in temperature until it reaches the boiling point of the liquid used. The vapor given off by the boiling liquid is then withdrawn from the flash chamber, passed through a condenser, and the condensate returned by suitable means to the main body of liquid in the flash chamber.

The advantages of such a system are: (1) *Automatic temperature control.*—The temperatures may be regulated by a choice of suitable liquids or mixtures of liquids from 160° F. to 340° F. or by providing suitable pressure within the jackets. (2) *Extreme simplicity.*—Some of the automatic control depends entirely upon the latent heat of vaporization of the liquid used (which in the case of water is 970 B.t.u. per lb.), it is absolutely stable and automatic. (3) *Efficient cooling* is accomplished because the entire jacket surface is maintained at or about the same mean temperature due to the fact that with the liquid at or about its boiling point ebullition is continually taking place, thus insuring a rate of heat dissipation that can be accomplished only through the utilization of the latent heat of the liquid. For example, 1 lb. of water circulating through the engine with a temperature rise of 20° F. can only absorb 20 B.t.u., while 1 lb. of water at 212° F. evaporating to steam absorbs 970 B.t.u., or approximately 50 times as much. (4) *The system is completely sealed* and, therefore, the only liquid loss is that due to mechanical leakage, which in practice is extremely small. (5) *Increased radiator capacity.*—Since the radiator is used only for condensing steam, its capacity is greatly increased; for example:

	Normal cooling °F.	Vapor phase °F.
Inlet water	140	212
Outlet water	160	212
Average temperature	150	212
Air temperature	120	120
M.t.d. across radiator	30	92

From the above it is apparent that the radiator has triple the effective size. This means that the radiator can either be reduced in size or the amount of air circulated decreased. In the latter case a very considerable fuel saving can be made as the average automotive-type engine fan consumes from 7 to 50 per cent of the total engine output.

Practical Results

Our company had a 350-cu. in. natural-gas engine equipped with thermostats operated at approximately 900-ft. piston speed and 65-lb. b.m.e.p. installed with one of the local oil companies and operating on natural gas containing about 3½ to 5 per cent hydrogen sulfide. We found that the original oil had sludged sufficiently to shut the engine down during its first week of operation. The oil was then drained, refilled, and the customer proceeded to drain the oil every few days, as well as make several changes in the filter pack. At the end of 90 days, when we inspected this engine, we found the cylinder liners worn approximately 0.080 in., all of the rings badly stuck, and a heavy deposit of extremely hard carbon over the entire surface of the head and top of the piston. The inside of the intake valve and valve chamber were also coated with a hard carbon deposit. This engine was partially reconditioned with new liners and rings and the vapor-phase cooling system installed. Checks were made of its operation approximately every 2 weeks, and at the end of the first 30 days the filter pack was changed, but not the lubricating oil. At the end of 120 days the engine was shut down and a complete examination made. The liners did not show any wear that could be measured, the piston rings were free and loose, the top of the piston was coated with a red oxide coating, there being no trace of carbin either here or on the head or in the intake-valve ports. Both intake and exhaust valves were likewise coated with a red deposit, and the cold compression taken on the engine was the same or slightly higher than when it was originally installed after the overhaul. The oil was sent to one of the major oil companies for analysis, copy of which is given here:

Original oil	25 S.A.E. gravity
Test oil—used	24.9 A.P.I. gravity
Foundation C.O.C., °F.	415
S.U. at 100° F.	403 sec.
S.U. at 130° F.	177.7 sec.
S.U. at 210° F.	57 sec.
Neutralization number	0.20
Water, A.S.T.M.	0
Ash	0.09 (red)
Insoluble in petroleum ether	1.06 per cent
Insoluble in chloroform	0.82 per cent
Sulfur	0.17 per cent

Remarks: The tests on this used oil indicate that it is in very good condition. The amount of sludge as measured by the insolubles in petroleum ether and chloroform is, however, at the maximum that should be allowed. Therefore, a change of oil is recommended.

(Continued on Page 106)

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FACTS ABOUT BIG

Kellogg-built Tower 13'10" in diameter x 124' long (Equal in height to a 10 story building): Shipping weight 360,000 lb. . . For Magnolia Petroleum Company, Beaumont, Texas.

Combination Bubble and Evaporator Tower (Kelcaloy lined) 12'3" in diameter x 103' long: Shipping weight 260,000 lb. Due to its 103' length, transportation from the Kellogg shop to its destination taxed the facilities of six railroads for 15 days. . . For Pan American Refining Corporation, Texas City, Texas.

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Kellogg-Built Evaporator and Bubble Tower 12'3" in diameter x 95' long. Shipping weight 254,700 lb. . . . For Pan American Refining Corporation, Texas City, Texas.

Kellogg-Built Evaporator Tower 15' in diameter x 80' long: Shipping weight 460,000 lb. (Heavier than the Statue of Liberty). Too big and too heavy to be handled by regular transportation methods, the tower was towed to its destination a distance of 1,371 miles thru rivers, canals and four of the Great Lakes. . . . For Standard Oil Company (Indiana), Whiting, Indiana.

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph. D., Technical Editor

Percentage of Oil in Oil-Sand Cores By Colormetric Test

We desire to get the details of a simple method which can be used in the field, for determining the percentage of oil in cores from drilling operations. We understand that a test has been developed for this purpose which does not require the usual laboratory equipment but we have been unable to find a description of it.—Y. R.

A method has been suggested and investigated by Donuil Hillis for the examination of oil-sand cores, in which the percentage of oil by volume is estimated from the color imparted to a colorless solvent applied to the sand. The liquid is matched by color when compared with the same solvent containing known percentages of the same kind of oil.

An L-shape rack is prepared to hold several 4-dr. vials. In each vial 7 cc. of clear colorless cleaning solvent are run from a burette and a line coinciding with the menisci drawn on the back, or vertical member, of the rack. A similar line is made for the 10-cc. volume. A convenient number of vials are placed in the rack and solvent added to the 7-cc. line. The crushed sample from the core is slowly added until the liquid reaches the 10-cc. mark. The color of the liquid prepared in this way is compared with five standardized solutions in similar vials.

The solutions are prepared by placing 5, 10, 15, 20, and 25 drops of the oil in separate vials. A test shows 44 drops of the oil to 1 cc. The volume concentration by calculation is shown in the table.

DROPS EQUIVALENT TO OIL PER CENT

Drops	Oil, per cent
5	1.13
10	2.27
15	3.41
20	4.54
25	5.68

An example shows that 3 cc. of sand when added to 7 cc. of the solvent produces the same color as that of the solution in the standard vial containing 20 drops of the oil. The table indicates this to be 4.54 per cent by volume; however, the oil in the 7 cc. of solvent came from 3 cc. of sand, this by inverse ratio of volumes contained 7/3 × 4.54 or 10.5 per cent.

Each investigation must be standardized in a similar manner. The author states that this method makes it possible to plot the results of the examination of 150 ft. of cores each day.

Reference: Donuil Hillis, Colormetric Method of Determining Percentages of Oil in Cores, Bul. Amer. Assn. Pet. Geol., 21, 1477, 1937.

Analysis of Crude Oil From Old Ocean Field, Texas

If you have the information available, it would be much appreciated if you will furnish the analysis of the oil produced in the Old Ocean field of Texas.—A. L. W.

The oil of the Old Ocean field, Brazoria County, Texas, has been analyzed by the U. S. Bureau of Mines, Petroleum Experiment Station, Bartlesville, Okla. The bureau reports this to be an unusual oil, light in color, containing over 70 per cent gasoline and naphtha. The analysis following is arranged from the report.

OIL FROM OLD OCEAN FIELD
BRAZORIA COUNTY, TEXAS

Gravity, A.P.I.	54.0°
Specific gravity	0.763
Sulfur, per cent	.....
Saybolt viscosity at 77° F.	under 32 sec.
Saybolt viscosity at 100° F.	under 32 sec.
Color, less than	No. 1 N.P.A.
Distillation, I.B.P.	81° F.

Gravity, A.P.I.	Per cent
Gasoline, 60.2	71.4
Kerosene, 43.2	13.9
Gas oil, 37.4	12.3
Residuum, 29.9	2.1
Loss	.3

Carbon residue of residuum, 0.1 per cent; carbon residue of crude oil nil. The residue is essentially gas oil.

Caustic Soda Test for Naphthenic Soaps in Lubricating Oils

There are many crude oils which yield compounds of the naphthenic group. Usually these are found in lubricating oils in the form of soaps although numerous authorities have suggested that naphthenic acids may also be present.

Naphthenic acids act on the metal which is being lubricated, causing damage to the part and forming metallic soaps which cause thickening of the oil. These soaps accelerate the oxidation, produce turbidity and precipitates; also, they aid the formation of emulsions if traces of water are present. It is for the purpose of detecting naphthenic soaps that the soda test has been devised.

The test is made by boiling a sample of the oil with dilute caustic soda solution for a few minutes. If the oil becomes turbid, the oil is unsatisfactory, whereas a clear transparent oil under the conditions is considered to be free from naphthenic soaps. The method is sometimes modified by acidifying the hot soda mixture and observing it for 30 minutes. If it remains clear, the test is considered to be negative.

Reference: Gurwitsch-Moore, Petroleum Technology, p. 531.

Physical and Chemical Laws and Principles Used in the Petroleum Industry

DETERMINATION OF ATOMIC WEIGHTS

(Weights of elements compared with hydrogen)

The atom is the smallest part of an element that can enter into combination. Its weight is deduced from combinations made with other elements about which adequate data are available.

Analyses of several compounds give this information:

Compound—		Parts	Molecular weight
1. Silicon chloride	Silicon	28.06	169.90
	Chlorin	141.84	
2. Mercuric chloride	Mercury	200.60	271.52
	Chlorin	70.92	
3. Hydrochloric acid (gas)	Hydrogen	1.00	36.46
	Chlorin	35.46	

In no compound is chlorin present in less than 35.46 parts, and in the examples in (1) the proportion is 35.46 × 4, in (2) it is 35.46 × 2, and in (3) it is one part. The atomic weight of chlorin is therefore 35.46.

Specific Gravity as Indication of Gasoline in Natural Gas

I am told that the gasoline content of natural gas can be estimated, in gallons per 1,000 cu. ft., from the specific gravity of the gas. Can you explain this and furnish the formula which is used?—I. W.

It is well established that the specific gravity of natural gas increases with the quantity of gasoline vapors contained. The boiling points of the hydrocarbons rise as the size of the molecule increases. This means that the heavier hydrocarbons, those of the higher molecular weights, are the ones most readily condensed when the pressure is increased and the temperature is lowered. The conclusion may be drawn, since the hydrocarbons of the gasoline range have higher molecular weights and specific gravities than those which are strictly gaseous, that as the specific gravity increases the gasoline content increases. This assumption cannot be relied upon as a positive indication in an unknown field, when the composition of the gas has not been determined, because certain heavy gases may be present, such as carbon dioxide, nitrogen, and air, to influence the specific gravity. However, the absence of gasoline is indicated by low specific gravity. The specific gravity of the heavy gases of this type are shown in the table together with that of the lightest of the hydrocarbon gases, methane.

SPECIFIC GRAVITY OF GASES

Carbon dioxide	1.529
Air	1.000
Nitrogen	0.967
Methane	0.554

The analyses of two gases, made by the U. S. Bureau of Mines, shown in the table illustrates how specific gravity may be unreliable for indicating composition.

NATURAL GASES OF SAME GRAVITY

Gas from—	Specific gravity	Methane %	Ethane %	Carbon dioxide %	B.t.u.
California	0.88	59.2	13.9	26.2	838
Pennsylvania	0.89	32.3	67.0	0.0	1,500

In the absence of contaminating gases the specific gravity is reliable as indicating the quantity of gasoline that may be extracted from natural gas. The interpretation may be made from the table.

GASOLINE YIELD BY COMPRESSION
Compared to Specific Gravity and Absorption Tests

Specific gravity	Absorbed in oil per cent	Yield per 1,000 cu. ft. per gal.
0.65-0.70	15-25	0
.70- .80	25-35	0.375
.80- .85	35-40	1
.85- .90	40-45	1.5
.90- .95	45-50	2.0
.95-1.00	50-55	2.5
1.00-1.10	55-65	3.0
1.10-1.20	65-70	3.5
1.20-1.30	70-80	4.0
1.30-1.50	80-90	5.0

References: Lichty, Natural Gas. The Bessemer Manual.

FIELD OPERATIONS

Summarizing the Week's Developments

KANSAS—Arbuckle-lime production was found ¼ mile south of the Sherwood-Burbank sand pool, and about 2 miles north of the rich Hittle pool, Cowley County. An Ellsworth County outpost in the Bloomer field found oil showing in conglomerate, giving the area a third producing horizon. A well that was classed as an extensioner of the Iuka pool, Pratt County, found salt water when plug was drilled and is due for abandonment.

OKLAHOMA—A producer on the community block in Ramsey pool, Payne County, made potential of 10,037 bbl. of oil, and a producer north of the community block flowed 55 bbl. in 20 minutes and was to be tested. The Earlsboro field in Pottawatomie County was revived when a northwest outpost flowed 1,300 bbl. of oil in 8 hours from Viola lime. A wildcat near Jones, Oklahoma County, was showing oil, and a Kingfisher County wildcat was showing gas.

ARKANSAS—A Smackover-lime pool was opened in Columbia County by Atlantic Refining Co. with a well starting at 22 bbl. per hour of 43.5-gravity oil, at a total depth of 9,002 ft. The Buckner field was extended 1¼ miles by a well flowing 90 bbl. in 2 hours.

TEXAS: Southwest Texas—New sands were being tested in Jim Wells and Nueces counties and extensions were being made in the East Colorado and East Plymouth fields in Colorado and Jim Hogg counties.

West Texas—Gaines County's new Cedar Lake pool opener flowed 237 bbl. of oil and 40 bbl. of water in a 24-hour test. A wildcat in Reeves County, Forest Development Co.'s No. 1 Scott was showing oil on a drill-stem test. Humble Oil & Refining Co. and Corbett's Crockett County test was dry and abandoned.

North Texas—A new producing horizon was found on the Rogers pool in Montague County.

Eastern Texas—Activity in the Navarro Crossing area of Houston and Leon counties in an effort to find west and north extensions was of interest. No wells were completed in the East Texas pool.

INDIANA—Wildcatting in Indiana now extends at intervals almost from the Michigan State line down to the Ohio River and the old fields of northeastern Indiana, where a host of Trenton rock-producing wells were abandoned years ago as no longer commercially productive, is again the scene of exploratory work.

ILLINOIS—A noticeable slump in completed work took place in the state, and production remained almost stationary, although a new record of crude oil output was made. No unusual wells were recorded among the completions, but the Devonian horizon in the Sandoval district continues to show wells of high production.

MISSISSIPPI—One of the most important near completions in the United States last week was Union Producing Co.'s No. 1 Woodruff, a wildcat 9 miles south of Yazoo City, Yazoo County, and 36 miles north of Vicksburg. It was showing 32-gravity oil, the first well to give promise of commercial oil production in the state.

Completions in All Fields

(Week Ending September 2, 1939)

	Oil	Gas	Dry	Total	1939 total comp. to date	1938 total comp. to date
N. Y., Pa., and W. Va.	53	13	4	70	2,117	2,585
Ohio	6	14	6	26	639	649
Indiana	6	0	2	8	174	53
Kentucky	10	12	5	27	466	585
Illinois	39	0	9	48	2,353	931
Michigan	22	3	6	31	934	558
Kansas	2	1	5	8	827	1,098
Oklahoma	3	2	9	14	1,217	1,187
Texas:						
North Central Texas	13	0	19	32	1,600	2,184
West Texas	8	1	4	13	1,225	1,346
Texas Panhandle	2	3	0	5	264	402
East Texas	0	0	0	0	302	1,366
East Central Texas	1	0	6	7	181	239
East Texas Border	0	0	0	0	48	101
Gulf Coast Texas	21	0	6	27	895	900
Southwest Texas	24	0	15	39	1,556	1,407
Total Texas	69	4	50	123	6,071	7,945
North Louisiana	2	3	3	8	352	444
Gulf Coast Louisiana	12	0	6	18	397	317
Total Louisiana	14	3	9	26	749	761
Arkansas	4	1	0	5	176	161
Montana	5	0	1	6	108	65
Wyoming	2	0	0	2	78	107
Colorado	0	0	0	0	8	6
New Mexico	6	1	0	7	395	385
California	13	0	4	17	621	900
Total United States	254	54	110	418	16,933	17,976
Total previous week	277	37	120	434		
Week ending Sept. 3, 1938	449	33	129	611		

Outstanding Fields—Highlights

(Week Ending September 2, 1939)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
K.M.A.	9	49	3	2,458	1,111	14,855
Wasson-Bennett	25	69	0	0	392	624
Ector County	23	69	0	0	1,808	32,257
Pecos County	18	33	5	250	1,183	17,276
Jones County	8	26	0	0	558	5,314
East Texas	1	27	0	0	26,069	141,862
OKLAHOMA						
St. Louis	4	26	0	0	0	9,650
KANSAS						
Barton County	5	14	0	0	447	3,920
Ellis County	2	17	0	0	414	3,180
Rice County	5	18	0	0	1,372	8,708
Russell County	4	24	1	361	1,300	7,716
NEW MEXICO						
Lea County	6	54	3	868	2,229	32,500
LA-ARK-TEX						
Cotton Valley, La. (deep)	1	9	1	480	137	5,450
Magnolia, Ark.	3	12	1	340	56	1,870
MICHIGAN						
Kent County	4	54	10	6,131	109	7,810
Van Buren County	4	22	6	1,105	272	13,015
ILLINOIS						
Salem	5	71	14	4,436	1,234	182,690
Louden	9	75	10	2,322	1,037	64,419
Other basin fields	21	214	15	3,113	1,574	55,210
Old fields	....	.....	....	.....	.....	9,150
CALIFORNIA						
Wilmington	5	15	4	1,839	696	87,250

Illinois and Kentucky

By STAFF CORRESPONDENT

Slight Gain in Production; Decline in Wells Completed

MATTOON, Ill., Sept. 4.—Thirty-nine oil wells were completed in the Illinois fields in the past week with a total initial production of 9,971 bbl. Nine dry holes brought the total completions to 48 for the week.

Production of the state during the week was little changed from the total of the previous week. An average of 311,469 bbl. per day last week was only 357 bbl. per day more than in the week before.

Ten new oil wells in Fayette County yielded 2,322 bbl. in initial production. Marion County's 14 completions registered 4,426 bbl. in initial output: Clay County's 4 oil wells were good for 1,546 bbl.; Clinton County's 1 new well, 228 bbl.; Monroe County, 1 well, 30 bbl.; Wayne County, 6 oil wells, 1,302 bbl.; Washington County, 3 oil wells, 137 bbl. Gallatin County had 2 dry holes, and 1 failure was reported in each of the following counties: Christian, Fayette, St. Clair, Monroe, Washington, White and Randolph.

In White County H. H. Weinert, Inc.'s No. 1 Miller-Andrews, SW NW NW Section 29-3s-8e, was reported to have flowed 525 bbl. in 24 hours through a ⅝-in. choke from Aux Vases sand. It was not yet a completion. Morrow & Gilliland's No. 1 Cynthia Cox, NW NW NE Section 7-4s-8e, was credited with 380 bbl. per day from Aux Vases sand on a production test.

Menhall's No. 3 Benoist in Section 8-2n-1e in the Sandoval Devonian lime play flowed 190 bbl. the first hour after it had been given a 5,000-gal. acid treatment.

Following are the details of completed work in the state, the initial production representing 24 hours unless otherwise stated:

In Christian County Meyer A. Mark's No. 1 Ed Birks, SE SW NW Section 13-11n-1w, was abandoned at 1,450 ft.

Marion County

In Marion County J. Booth and others' No. 2 McMakin, SW cor. NW SW SW Section 34-3n-2e, topped Fredonia lime at 2,116 ft., total depth 2,144 ft.; acidized with 1,000 gal.; pumped 150 bbl. per day. Harvey Oil Co.'s No. 3-A Kagey, SE cor. NE SW SE Section 33-3n-2e, McClosky lime at 2,128-40 ft.; pumped 600 bbl. per day.

Potter Brothers' No. 11 M.&I.R.R. "A," NW cor. SE SE Section 16-2n-2e, Benoist sand at 1,856-84 ft., shot with 35 qt. on bottom, pumped 150 bbl. of fluid, 7 per cent water. Hart and others' No. 3 Young school, NE cor. NW SE Section 20-2n-2e, Benoist sand top at 1,730 ft., Aux Vases at 1,795 ft., total depth 1,866 ft., shot with 120 qt. in Benoist, flowed 480 bbl. a day. Magnolia Petroleum Co.'s No. 58 H. Young, SE cor. NE SW NW Section 28-2n-2e, McClosky pays at intervals from 1,953 to 2,062 ft. Acidized with 4,000 gal. flowed 720 bbl. a day. Magnolia's No. 59 Young, NW NW SW Section 21-2n-2e, McClosky lime at 1,967-2,007 ft. and 2,025-54 ft., flowed 820 bbl. a day. Magnolia's No. 24 W. B. Young, NW SW NE Section 20-2n-2e, McClosky lime at 1,947-2,000 ft., in streaks, acidized with 5,000 gal., pumped 192 bbl. a day. I. D. Lain's No. 8 Dempsey, SE NE SW Section 31-2n-2e, McClosky lime at 1,963-86 ft., acidized with 5,000 gal., flowed 600 bbl. a day. Texas Co.'s No. 12 Frederick A, NE NW SW Section 29-2n-2e, McClosky at 1,938-46 ft. and 1,955-80 ft., flowed 60 bbl. in 3 hours. Magnolia Petroleum Co.'s No. 16 Young, SW NW NE Section 29-2n-2e, McClosky at 1,927-61 ft., in streaks, acidized with 4,000 gal., pumped 336 bbl. a day. Texas Co.'s No. 5 Kleinschmidt, NW cor. NE SW NE Section 28-2n-2e, Benoist sand at 1,825-50 ft., pumped 30 bbl. in 3 hours. Texas Co.'s No. 11 Stonecipher, NE SE SW Section 32-2n-2e, Benoist sand at 1,749-57 ft., flowed 73 bbl. in 3 hours, rated at 511 bbl. per day. Texas Co.'s No. 15 McCollum, C E½ NW NE Section 32-2n-2e, McClosky lime at 1,918-91 ft., at intervals, flowed 70 bbl. in 3 hours, rated at 490 bbl. per day. Texas Co.'s No. 1 Freisner, SE NE NW Section 32-2n-2e, McClosky at 1,881-1,953 ft., at intervals, flowed 155 bbl. in 3 hours, rated at 1,085 bbl. a day.

Fayette County

In Fayette County Carter Oil Co.'s No. 2 Beck, NW NE SW Section 21-8n-3e, was shot with 30 qt. at 1,551-61 ft., and with 30 qt. at 1,521-31 ft., and flowed 96 bbl. per day. Carter's No. 2 Simmons, NE NW SW Section 23-8n-3e, shot with 20 qt. and then with 40 qt. at 1,479-91 ft., flowed 528 bbl. of oil in 24 hours.

W. B. Johnson's No. 1 Deal, NW NE NW Section 6-7n-3e, shot with 40 qt. at 1,507-95 ft. (Cypress sand), pumped 95 bbl. per day. Nash Redwine and others' No. 1 Sealock, SE cor. NE NE Section 24-7n-2e, pulling casing to plug and abandon, total depth 1,586 ft.

Illinois Fields

HIGHLIGHTS OF THE WEEK: A considerable falling off in completed wells was noted in the Salem and Louden fields in the past week. Sixteen new operations were reported in Wabash County in the southeastern part of the state, which brings that county up to third place in field work, being exceeded only by Marion and Fayette counties. Another two weeks will give oil men a good line on the importance of Wabash as an oil region. It is now the most promising of the 1939 discoveries.

Average daily production of new fields, 302,319 bbl.; old fields, 9,150 bbl.; total, 311,469 bbl.

Oil wells completed, 39; total operations, including locations, rigs and wells drilling, 471.

Carter Oil Co.'s No. 7 Goodson, NE SW NE Section 7-7n-3e, swabbed 304 bbl. of oil and 20,000 cu. ft. of gas at a total depth of 1,567 ft., from Bethel sand at 1,547-63 ft., shot with 40 qt. Shell Oil Co., Inc.'s No. 3 Van Buening, SW SE NW Section 28-7n-3e, shot with 3 qt. at 1,585-89 ft., pumped 84 bbl. of oil and 6 bbl. of water in 19 hours. Carter Oil Co.'s No. 4 Coddington, SE NW NW Section 20-7n-3e, shot with 80 qt. at 1,504-36 ft., swabbed 276 bbl. per day through casing. W. B. Johnson's No. 2 Logue, SW SW SW Section 18-7n-3e, shot with 40 qt. at a total depth of 1,555 ft., pumped 110 bbl. per day. Carter's No. 4 Williams, SW NE SW Section 7-7n-3e, shot with 30 qt. and then with 40 qt. and flowed 100 bbl. from stray sand, and 304 bbl. from Weiler sand, together with 300,000 cu. ft. of gas, total depth 1,585 ft.

Ohio Oil Co.'s No. 1 Kistler, NW NW NW Section 31-6n-3e, shot with 3 qt., pumped 166 bbl. per day, total depth 1,599 ft. Texas Co.'s No. 4 Griffith, SW NE SE Section 25-6n-2e, set 7-in. casing at 1,597 ft., total depth 1,614 ft., flowed 37 bbl. of oil in 3 hours, rated at 259 bbl. per day.

In Lawrence County Joe Kesl's No. 1 Jones, C E½ E½ W½ Section 7-4n-10w of second principal meridian, Devonian lime top at 2,890 ft., dry and abandoned at 3,133 ft.

Clay County

In Clay County Pure Oil Co.'s No. 2 J. Milner Bessey, C S½ SW SE Section 7-2n-8e, flowed 850 bbl. a day from McClosky lime at 2,957-3,100 ft. Pure Oil Co.'s No. 3 A. G. Smith, C NW NW Section 7-2n-8e, flowed 431 bbl. naturally in 9 hours from pays at 3,037 to 3,125 ft., at intervals. Pure Oil Co.'s No. 1 Hasselton, C W½ NW SE Section 18-2n-8e, total depth 3,095 ft., acidized with 5,000 gal., pumped 90 bbl. per day. Pure Oil Co.'s No. 8 Sol Smith B, C N½ SW SE Section 7-2n-8e, flowed 175 bbl. naturally in 11 hours from pays at 2,043-3,087 ft., at intervals.

In St. Clair County Matcher & Leatch's No. 1 Bear, SE NE SW Section 23-2n-6w, Devonian lime top at 1,764 ft., dry and abandoned at 1,925 ft.

In Clinton County Williams and others' No. 1 Dunn, SW cor. NW NE Section 1-1n-1w, shot with 10 qt. at a total depth of 1,342 ft., pumped 228 bbl. per day.

In Monroe County American Oil Co. No. 1 Theobold, SW SE SW Section 35-1s-10w, Trenton rock at 2,380-2,400 ft., total depth, pumped 30 bbl. of oil and 70 bbl. of water.

In Wayne County Carl Robinson's No. 2 C. Oakley, NE NE NE Section 34-2s-8e, Aux Vases lime at 3,281-3,316 ft. and 3,395-99 ft., acidized with 4,000 gal., flowed 207 bbl. per day. Illinois Mid-Continent Oil Co.'s No. 4 Wilson, SE SW NW Section 35-2s-8e, pay at 3,395-3,466 ft., flowed 450 bbl. a day. New Penn Oil Co.'s No. 1 Pruett, SW SE NE Section 7-2s-9e, pay at 3,398-3,410 ft., pumped 7 bbl. of oil and 27 bbl. of water. Iroquois Oil & Gas Co.'s No. 1 Masterson, NE NW NE Section 17-3s-9e, Fredonia lime top 3,375 ft., pays at 3,453-58 ft. and 3,477-80 ft., acidized with 3,000 gal., pumped 145 bbl. of oil in 19 hours. T. F. Morrow's No. 1 Cox, NW NW NE Section 6-4s-8e, Aux Vases sand at 3,235-85 ft., flowed 368 bbl. in 24 hours. Whiteway Oil Co.'s No. 1 Pollard, SW SE NW Section 16-3s-9e, McClosky pays at intervals from 3,380 to 3,405 ft., flowed 125 bbl. in 24 hours.

In Washington County Magnolia Petroleum Co.'s No. 3 Novak, SW NW SW Section 14-3s-3w, Benoist sand at 1,261-75 ft., shot with 10 qt., pumped 27 bbl. of oil and 5 bbl. of water in 24 hours. Lilly and others' No. 1 Kozuszek, NE NW SW Section 23-3s-3w, Benoist sand at 1,254-87 ft., shot with 10 qt., pumped 61 bbl. per day. Shell Oil Co., Inc.'s No. 3 Kozuszek, SW SE NW Section 23-3s-3w, Benoist at 1,263-71 ft., shot with 21 qt., pumped 49 bbl. in 24 hours. Jeter and others' No. 1 Orlick, SE SE SE Section 11-3s-1w, McClosky lime at 1,803-14 ft., total depth 1,866 ft., dry and abandoned.

In Monroe County Robert Bender's No. 1 Mentel, SW SE SW Section 1-3s-11w, reported dry and abandoned at 600 ft.

In Gallatin County Kingwood Oil Co.'s No. 1 Egyptian Tie & Lumber Co., C S½ NE SW Section 15-8s-10e, total depth 2,850 ft., plugged back to 2,465 ft. and Cypress sand shot with 25 qt. at 2,425-60 ft., pumped 17½ bbl. of oil and 120 bbl. of water, abandoned. Vanderbark and others' No. 1 Pusick, SE SE NW Section 11-8s-10e, Cypress sand at 2,362 ft., total depth 2,452 ft., small showing of oil, abandoned as a dry hole.

In White County Palmer Corp.'s No. 1 Carmi Baptist Orphanage, NE SE SE Section 22-5s-9e, dry and abandoned at 2,882 ft. It had been shot with 30 qt. at 2,875-81 ft., Cypress sand, but it showed only water.

In Randolph County Ben Banner's No. 1 Evers, SW cor. NE SW NE Section 5-7s-5w, was dry and abandoned at 1,200 ft.

New Wildcat Operations

New wildcats reported during the week were as follows:

In Livingston County, northern Illinois, Mitchell & Fradehagen's No. 1 McWilliams, C NW NW SE Section 3-30n-6e, was drilling at 710 ft.

In Menard County William Johnson's No. 1 T. Johnson, C SE NW NE Section 26-19n-5w, got a hole full of water at 708-12 ft., and was lowering 5-in. casing from 701 ft.

In Greene County F. A. Johnson's No. 1 Owens, C SW SE SE Section 16-11n-10w, was drilling at 515 ft. Scroggins' No. 1 McVay, C SW NE Section 5-10n-11w, is a location.

In Clark County Trenton Rock Oil Co.'s No. 1 Black, C SE NW Section 14-11n-14w, rigging up machine; Spencer's No. 1 Montgomery, SW SE SW Section 5-9n-14w, a location; D. R. Gooch's No. 1 M. Davis, 400 ft. from S and E lines of SE¼ Section 17-9n-13w, location. All these Clark County locations were west of the second principal meridian.

In Fayette County Central States' No. 1 Sperry, C NE SE NW Section 17-6n-3e, set 10-in. casing at 103 ft. J. Powell and Doc. McClorey's No. 1 Woolin, NE NW NE Section 13-5n-2e, a location.

In Marion County Dunbar & Wingate's No. 1 France, NE NW SW Section 1-4n-4e, drilling at 410 ft.

In St. Clair County Oil Exploration Co.'s No. 1 Whickle, NW NW SE Section 34-2s-6w, rigging up machine.

In Monroe County Columbia Quarry Co.'s No. 1 fee, NW SW SE Section 3-3s-11w, in western Illinois, drilling at 700 ft.

In Washington County Arner and others' No. 1 Norwicki, NE cor. NE SW Section 33-3s-1w, moving in rotary tools.

In White County T. F. Morrow's No. 2 Cynthia Cox, NE NW NE Section 6-4s-8e, set 10-in. casing at 107 ft.

In Wayne County Lackey and Wilson's No. 1 Rawlins, NW NE SE Section 6-4s-8e, rig up.

In Jefferson County Alma Oil Co.'s No. 1 Consolidated Coal Co., SE SE NW Section 23-4s-2e, drilling at 2,450 ft.

In Edwards County H. N. Riddle's No. 1 Fred Schroeder, SW SE SW Section 22-2s-14w, set 10-in. casing at 80 ft.; R. E. Johnson's No. 1 Smith, about 50 ft. from E line and 1,275 ft. from S line of SW¼ Section 18-3s-14w of second principal meridian, building derrick.

Wildcat Progress

In Champaign County Sidney Oil & Gas Co.'s No. 1 Wendling, SE NE SE Section 10-17n-10e, drilling at 1,750 ft.

In Douglas County Lewellen & Phillips' No. 2 Kennedy Brothers, SW SE NW Section 34-16n-9e, shot with 10 qt. at a total depth of 400 ft., cleaning out.

In Shelby County Rex Development Co.'s No. 1 Odell, C E½ SE NW Section 20-14n-2e, shut down for orders at 1,456 ft.

In Coles County East Oakland Syndicate's No. 1 Temple, SW cor. SE NE Section 36-14n-10e, a mystery well, last reported drilling below 2,000 ft.

In Clark County Patman Production Co.'s No. 1 Ingersoll, NW SW SE Section 29-11n-14w, total depth 1,117 ft., plugged back to 1,058 ft. and will shoot Carper sand, topped at 977 ft. W. R. Miller's No. 1 Booth, SE NE NW Section 17-11n-14w, casing parted and well shut down at 1,800 ft. George B. Scherrett's No. 1 Turner, SE SW NW Section 14-11n-14w, total depth 860 ft., moving off rotary. Jinks' No. 1 Johnson, SE cor. SW NW NW Section 36-10n-14w, total depth 535 ft., moving off machine. Sharp & Stipes' No. 1 Sharp, C N½ NW NE Section 31-10n-14w, total depth 46 ft., moving off spudder. E. D. Strickler's No. 1 McFarland, NW NE SW Section 19-10n-13w, total depth 981 ft., running 8-in. casing.

In Fayette County Turner's No. 1 Hoagland, NW NW SW Section 14-9n-4e, drilling at 750 ft.

In Jasper County Siberling and others' No. 1 Freeland, E½ SW NW Section 15-8n-14w, shot with 30 qt. at a total depth of 722 ft., pumped 10 bbl. of oil per day, testing. Dan Huddleston's No. 1 fee, NE SW SE Section 7-8n-11e, drilling at 760 ft.

In Bond County W. N. Lee and others' No. 1 Sharp, NE SW SE Section 27-7n-4w, shut down for repairs, total depth 340 ft. Devonian Oil & Gas Co.'s No. 1 Ambuehl, NE SW NW Section 22-6n-4w, shut down for orders at 1,894 ft. R. F. Andrews and others' No. 1 Morris, NW NW NW, making repairs, total depth 475 ft. Jenkins and others' No. 1 White, SW SE NW Section 17-5n-4w, drilling at 1,510 ft., with the hole full of water.

In Crawford County Downey and others' No. 1 Cockran, SE SE NW Section 12-5n-12w, total depth 962 ft., will test on pump.

In Marion County Dorsey Hager's No. 1 Bachman, SE SW SE Section 34-4n-2e, drilling at 1,803 ft.

In St. Clair County T. D. Crittenden's No. 1 Klatz, NE NE NE Section 35-1n-10w, drilling at 155 ft.

In Marion County Quisenberry's No. 1 Hawkins, NE NE NE Section 32-1n-4e, had water in Benoist sand topped at 2,646 ft., and was drilling at 2,780 ft.

In Clinton County Snell & Goldschmidt's No. 1 Schaefer, SW NE NW Section 33-2n-3w, drilling at 869 ft. Paul Mosebach's No. 1 Robinson, SE SW SE Section 5-1n-3w, drilling at 648 ft. Williams and others' No. 1 Grough, SW SE NE Section 1-1n-1w, rigging up machine.

In Wayne County Albright's No. 1 Collins, NW NW SE Section 24-1s-9e, coring at 2,219 ft. Pure Oil Co.'s No. 1 Dean, C E½ NE Section 3-1s-8e, drilling at 2,929 ft., with Glen Dean topped at 2,538 ft. Stengel's No. 1 Shelton, C N½ NE NE Section 21-2s-9e, drilling at 2,810 ft. New Penn Development Co.'s No. 1 Xanders, NE SW SW Section 7-2s-9e, drilling at 965 ft.

In Washington County Algora Oil Co.'s No. 1 Bates, NE cor. NW NE Section 18-1s-1e, hole full of water at 2,242-44 ft.; shut down for orders. McGee's No. 1 Koster, SW cor. NE NE Section 9-1s-1e, shot with 2½ qt. in pay at 2,075-89 ft. Casing collapsed; pulled and reran casing to shut off water; no shut off; underreaming casing.

In Lawrence County Walter Payne's No. 1 Patrick Brothers, NW cor. SW NE Section 28-4n-11w, drilling at 2,445 ft. Strine, Hawke and others' No. 1 Corrie, C E½ SE NE Section 21-2n-13w, total depth 2,912 ft., acidized with 3,000 gal. and a 25-bbl. oil load, swabbing. Ullom & Purnell's No. 1 Jordan, NE cor. NW NW Section 8-2n-11w, McClosky lime "pay" at 1,860-66 ft., with a small showing of oil; drilling at 1,890 ft.

In White County Sun Oil Co.'s No. 1 Garner, SW SE SW Section 1-5s-10e, Aux Vases sand at 2,942 ft. Reamed out removable pipe and the well flowed 55 bbl. of oil in 20 minutes. Later it pumped 27 bbl. of oil in 24 hours. Will clean out.

INDIANA

EVANSVILLE, Ind., Sept. 4.—While interest in Indiana's new drilling campaign centers mostly in the southwestern counties, particularly Gibson and Posey, wildcatting is being carried on almost from the Michigan State line down to the Ohio River. New tests were started in the past week in St. Joseph County, west of South Bend, and in La Grange County, both on the northern border. Wildcatting is being pursued in a score of counties in the state.

Gibson County supplied a number of good oil wells during the week, one well flowing 448 bbl. in 14 hours and another 108 bbl. in 3 hours, after which they were shut in. Posey County's best new well was a 400-bbl. initial producer.

Following is the record of the week for completions and wildcat progress:

Posey County

In Posey County Superior Oil Co.'s No. 4 New Harmony Realty Co., NE SW SE Section 9-5s-14w, total depth 3,028 ft., was plugged back to 2,283 ft. and swabbed 36 bbl. of oil from sand at 2,239-49 ft. and was completed. Same company's No. 5 New Harmony, NE NE SE Section 9-5s-14w, had Walterburg sand at 2,166-2,222 ft., and flowed an estimated 400 bbl. of oil through ¼-in. chokes on 2½-in. tubing. It was shut in. New work started in Posey County during the week included Brown & Ryan's No. 1 Wolf, C SE SW Section 30-7s-12w, drilling at 1,790 ft.; Superior Oil Co.'s No. 7 New Harmony Realty Co., SW SW NW Section 10-5s-14w, drilling at 795 ft. Garland Moore's No. 1 Townsite, NW cor. SE Section 35-5s-13w, rig up; Superior Oil Co.'s No. 6 New Harmony, SW NW SW Section 10-5s-14w, drilling at 1,240 ft.

Somers & Egan's No. 1 Keck, NE NE NE Section 34-3s-14w, with pay at 2,507-15 ft., total depth, flowed 353 bbl. of oil in 24 hours, by heads, through 7-in. casing. It was not a completion. H. G. Lewis and others' No. 1 Hill, NE NW SE Section 35-3s-14w, with pay at 3,106-12 ft., total depth, filled 2,500 ft. with fluid, 350 ft. of which was water and 2,150 ft. oil, in 36 hours. It was being rigged up to pump.

Somers & Egan's No. 2 Keck, SE NE NE Section 34-3s-14w, was rigging up rotary; Rogers Brothers' No. 1 Seifert, SW SW NE Section 20-6s-12w, rigging up rotary.

Haynes & Thomas' No. 2 Seifert, NE NW SE Section 19-6s-12w, was abandoned at 420 ft. It had no gas and only a scum of oil. Coast Producers, Inc.'s No. 1 Seifert, CSL NE SW Section 19-6s-12w, had a hole full of water and was abandoned at 845 ft.

Gibson County

In Gibson County Hollandsworth & Bander's No. 3 Boone-Cooper, NW SW NE Section 13-3s-14w, flowed 170 bbl. of oil in 24 hours through ½-in. choke from oolitic lime at 2,860-73 ft., total depth. Lewis Production Co.'s No. 1 Cooper D, SE NE NW Section 13-3s-14w, had McClosky lime at 2,861-80 ft., total depth, and flowed 448 bbl. in 14 hours and was then shut in. Hollandsworth & Bander's No. 6 Hughes-Cooper, NW SE SE Section 12-3s-14w, was shot with 20 qt. at 2,489-2,502 ft. and flowed a 40-bbl. head, but casing collapsed 100 ft. off bottom and the well was not yet a completion. Continental Oil Co.'s No. 2 Bozeman Land Co., NE NW NW Section 24-3s-14w, had Cypress sand at 2,485-2,500 ft., total depth, and flowed 108 bbl. in 3 hours through 2-in. tubing. It was not yet completed.

Midwest Development Co.'s No. 1 Corn, NE NE NW Section 22-2s-9w, old total depth 1,431 ft., was deepened and 6⅝-in. casing set at 1,570 ft., and casing perforated at 1,421-28 ft. It pumped 12 bbl. of oil and 180 bbl. of water in 24 hours and was completed. Michel Brothers' No. 1 Carruthers, NE SE SE Section 26-1s-10w, casing collapsed and hole was junked and abandoned at 1,347 ft.

New work in Gibson County included Continental Oil Co.'s No. 4 Cooper, NE SW SE Section 12-3s-14w, set 10-in. casing at 268 ft., drilling plug; Lewis Production Co.'s No. 5 Cooper B, 2,640 ft. from S and 1,610 ft. from W lines of SE¼ Section 12-3s-14w, rig up; Lewis Production Co.'s No. 2 Cooper D, NE SE NW Section 13-3s-14w, rigging up rotary; Joe Bander and others' No. 7 Hughes-Cooper, SE cor. NW SE SE Section 12-3s-14w, location; Joe Bander and others' No. 2 Boone-Cooper, SE SW NE Section 13-3s-14w, rig up; Midwest Development Co.'s No. 1 Erdell, NW cor. SE SW SW Section 23-2s-9w, and Mid West Development Co.'s No. 1 Bryant, SW NW NE Section 15-2s-9w, location; Hulman and others' No. 1 Hollis, SE SW NW Section 36-2s-11w, location; Paul Davis and McElreath and others' No. 1 Prudential Life, NW NW NW Section 36-1s-10w, location.

In Spencer County Damron Brothers' No. 1 Stansfield, C E½ SE SW Section 19-7s-6w, total depth 1,351 ft., plugged back to 920 ft., given a 20-qt. shot at 898-920 ft. with no results, abandoned. Damron Brothers were running 6-in. casing to 895 ft. to shut off water in No. 1 Crowder, C NE NE Section 18-7s-6w; Kentucky Natural Gas Co. was drilling below 600 ft. in No. 1 Axton, C SE NE Section 30-7s-6w; Kelly and others were fishing for tools at 1,440 ft. in No. 1 Niles, SE SW SE Section 35-7s-7w; D. P. Hyne was drilling at 840 ft. in No. 1 Varner, NE NE SW Section 24-6s-5w; Major Oil Co. was underreaming 6-in. casing, total depth of the hole 1,000 ft. There was a small oil showing at 984-91 ft.

In Vanderburgh County, J. L. Drake had started drilling No. 1 Keil, NW cor. Section 5-6s-10w. Vanderburgh Oil Corp. No. 3 County farm, SE SE SE Section 35-5s-10w, is a 10-bbl. pumper, completed at 854-907 ft. after a 140-qt. shot. It also pumped 30 bbl. of water.

In Pike County George W. Miller's No. 1 Nixon, SE SW NE Section 14-3s-8w, was drilling at 3,185 ft.

Northern Wildcats

In St. Joseph County K. V. Nilson made a location for No. 1, 210 ft. from N and 260 ft. from E lines of NE¼ Section 8-37n-1e.

In Lagrange County J. W. Hunt's No. 1 Babcock, SW SW NE Section 13-37n-9e, was drilling at 312 ft.

In Owen County W. H. Young and J. C. Ellis No. 1 Rice made a location for No. 1 Rice, NE NE NW Section 29-11n-3w.

(Continued on Page 88)

WESTERN KENTUCKY

OWENSBORO, Ky., Sept. 4.—Nine oil wells and four dry holes comprised the completion record of the western Kentucky fields in the past week. Twelve new operations were reported. Following are the completions with a record of their first 24 hours' production, and the new work started:

Breckinridge County, Van Zandt district: Barney

(Continued on Page 86)

North and East Texas

By
D. H. STORMONT

Montague County's New Pay; Wildcatters Are Very Active

WICHITA FALLS, Tex., Sept. 4.—A new oil well and an indicated failure in the granite wash pay zone of the Benton & Holmes pool in Montague County together with the discovery of a new producing horizon in the Rogers pool, also in Montague County, and new producers and new locations for both the deep and the new shallow areas of the Hull-Silk pool in Archer County, led the developments of another busy week in North Texas' exploratory campaign.

The Benton & Holmes pool, opened last spring by Benton & Holmes' No. 1 Joe Bowers, SE cor. Section 55, M.E.P.&P. Survey, has two oil wells producing from the original Bonita sand, found in the discovery well; one oil well in the new granite wash pay horizon, Benton & Holmes' No. 2 Joe Bowers, and two wells attempting completion in the granite wash horizon. One of the latter is Continental Oil Co. and United Producers Co.'s No. 1 Braman, G. R. Jaquez Survey, Abstract 393, ⅛ mile south and slightly east of the granite wash discovery well. It is a direct east offset to the two operators' No. 1 Langford, second well from the Bonita sand horizon. No. 1 Braman flowed 20 bbl. of oil hourly naturally through ⅛-in. choke from pay drilled from 3,795 ft. to 3,844 ft., total depth, and is rated as a better well than the discovery granite wash producer. Hopes for a third granite wash producer were fading as Phillips Petroleum Co.'s No. 1 Custers, east offset to the deeper horizon discovery well, recovered only 75 ft. of mud on a 30-minute test of the pay section, drilled from 3,690 ft. to 3,767 ft. Operators were preparing to make an electrical survey of the hole as the week closed. The granite wash pay has proven more prolific than the 2,900-ft. Bonita sand of the original discovery well.

Montague County's other oil pool receiving considerable interest is the Rogers area, 1 mile west of the town of Nocona. Discovery of a new producing horizon and the completion of two wells from that horizon headed the development. Youngblood & Foree's No. 1 Davis, in the J. D. Jennings Survey, ½ mile northeast of the discovery well in the Rogers pool, had 7-in. perforated casing at 4,310-38 ft. and was completed for 150 bbl. of oil in 3 hours, flowing through tubing. This well was dry in the regular 4,600-ft. discovery horizon and was plugged back for completion to open the new pay. Already a ½-mile south extension has been given the new 4,300-ft. pay by Rogers & Rogers' No. 2 Burnett, Jacob Lenow Survey, Abstract 433, which perforated casing from 4,278 ft. to 4,305 ft. The well cleaned itself into pits, flowing heavily with no gage or estimates. However, it is believed to be the best well in the field from either horizon. The well has been shut in to run tubing for completion. It is an east offset to No. 1 Rogers, discovery well for the entire area. The field is now composed of three wells from the 4,600-ft. horizon and two from the new 4,300-ft. level.

Archer County

New completions in the area linking the original Hull-Silk pool with the Sikes area to the northeast featured the activity of the week in Archer County. Bert Ligon's No. 2-A Moss, southwest portion of Block 1, H.T.&B. Survey, Abstract 199, provided another connecting link when the producer drilled oil sand from 4,292 ft. to 4,325 ft. and flowed by heads through casing while drilling in. It flowed steadily while tubing was being run, and then was shut in for potential gage. Another large producer in the link area is Phillips Petroleum Co.'s No. 1 Moss, Block 1, H.T.&B. Survey, west offset to Ligon's No. 1 Johnson, first well in the area. The Phillips producer flowed 151 bbl. of oil the first hour and 65 bbl. the second hour on a 2-hour gage. Pay was from the regular 4,300-ft. horizon.

A new shallow wildcat in southwestern Archer County has been staked by C. W. Snoddy as his No. 1 M. Talbott, a 1,500-ft. test to be drilled in the southwest corner of the north 40 acres of the west 80 acres of the Talbott 100-acre tract in Block 24, T.E.&L. Survey, 1¼ miles east of Megargel.

Clay County

Still centering much of the interest in North Texas is the continued search for deep Strawn production throughout the southern part of Clay County. Holding the attention as the week closed was Frabor-Hodges Corp. and Mid-Union Drilling Co.'s No. 1 L. Kinder, NE cor. Section 11, Clark and Plumb Survey, on the extreme western border of Clay County. The hole has been plugged back to 4,158 ft. and is testing on pump, with about 131 bbl. of fluid flowing in 21 hours. Production has been indicated at several different deeper levels, but owners continued to plug back. The present depth seems the most prolific one and a permanent pumping unit has been installed. Of the 131 bbl. of fluid pumped, only 6 bbl. was reported to have been water.

Five miles west of Bellevue, southern Clay County, Ramsey Petroleum Co. and Youngblood & Foree's No. 1 R. F. Wynn, Block 2, G. Gowan Survey, drilled hard sand with slight shows of oil from 5,494 ft. to 5,501 ft., and cored from that depth of 5,512 ft. recovering sand and shale, with streaks of saturation. Operators were drilling ahead as the week closed. One mile southwest of Blue Grove, L. T. Burns' No. 1 Calloway, Block 9, Hopkins County School Lands, was preparing to drill deeper into an indicated pay section topped at 5,241 ft. and penetrated to 5,254 ft. Production in this wildcat would open another large part of the county to development.

EASTERN TEXAS

DALLAS, Tex., Sept. 4.—Activity in the Navarro Crossing field of Houston and Leon counties, together with the staking of several new tests in the East Central Texas area, led developments for that district in the past week. Significant for the East Texas field was the fact that only one new location was announced and no completions were reported in the 7-day period.

Seeking a west extension of the Leon County portion of the Navarro Crossing field, Humble Oil & Refining Co.'s No. 1 George Dailey was last reported drilling at 4,335 ft. in shale. This test is southwest of Humble and Sun's No. 1 Ed Swift, discovery producer in the Leon County portion of the field. As a west offset to the Houston County portion of the field and across the river east from the Leon County extension area, Humble Oil & Refining Co.'s No. 4 Dailey & Taylor, J. G. Thompson Survey, set 5½-in. casing at 5,847 ft. with total depth at 5,848 ft. The producing sand was topped at 5,842 ft. at this test.

Development in the northern part of the pool where Hinchcliff & Smith completed No. 1 Joe Gilmore was seen in the prospects of a new completion and the staking of a new test. The indicated producer is W. C. McGlothlin's No. 1 Dailey, in the northern part of the J. G. Thompson Survey, and a south offset to the north extension producer. Test was last reported coring for the pay section at 5,847 ft. A location was made for Humble Oil & Refining Co.'s No. 1 A. Pouncey, east offset to the prospective McGlothlin producer. Derrick has been erected and drilling will commence at once.

Another Houston County wildcat attracting considerable attention was Aloco Oil Co.'s No. 1 Z. W. Wiesinger, T. H. Barrow Survey, 7 miles southwest of Elkhart. It was last reported drilling below 3,010 ft. and was projected to the Woodbine sand.

Several other scattered wildcats held interest in the area with production possibilities seen in one of them. In Leon County, in the area opened a year ago by the J. K. Hughes' No. 1 Sam Bane, the same operator is testing an oil show in No. 1 Moore, J. N. Boyd Survey, 6 miles southeast of Buffalo. The test topped the Woodbine sand at 5,480 ft., found saturation at 5,512 ft. and 3 ft. of saturation in drilling to a total depth of 5,534 ft. where casing was cemented. Through perforations from 5,513-14 ft. the well swabbed salt water, with about 5 per cent oil content. Testing continues.

In Hunt County Westmount Oil Co.'s No. 1 Stevens, J. L. Terry Survey, Abstract 1231, 1½ miles north of Celeste, was drilling below 3,250 ft. in a Woodbine sand test. The well is being drilled as a "tight" operation.

Deep Test

A 6,000-ft. deep test to the Glenrose horizon was drilling below 2,000 ft. as the week closed. It is M. Samuell's No. 1 C. Barrow, W. G. McKinsey Survey, 4 miles northwest of Thornton. This is the only deep lower Marine Trinity projected test drilling in the eastern Texas district at the time and will be a closely watched operation.

New wildcat tests were staked in Camp County and in Limestone County. H. S. Moss' No. 1 Blackston is the new Camp County operation, it is in the E. B. Davis Survey, 2 miles south of Pittsburg. Material is being moved in for immediate drilling. The Limestone County location was for J. R. Bunn's No. 1 C. O. Wright, in the M. Clendennen Survey, 1 mile southeast of Coolidge. Derrick has been erected and materials are to be moved to the location early this week.

Completions

In the Boggy Creek field of Anderson County A. D. Boyd's No. 1 L. Smith, D. Roberts Survey, was junked and abandoned at a total depth of 3,695 ft.

In the Long Lake field of Anderson County Carter-Gragg Oil Co.'s No. 3 J. E. McGaughey, S. Sanches Survey, topped the sand at 5,314 ft. and penetrated the horizon to 5,319½ ft. and was completed for 89 bbl. of oil in 24 hours, flowing through 6/64-in. choke. A. McCutchins' No. 1 E. M. Johnson, J. Adams Survey, topped the sand at 5,365 ft. and found only salt water in taking 1 ft. of penetration. The test was plugged and abandoned at 5,366 ft.

In Houston County G. C. Dixon's No. 1 Goodman, W. J. Thomas Survey, was dry and abandoned at a total depth of 2,850 ft.

In Hunt County K. E. Jennings' No. 1 Banks, J. W. Haynes Survey, 5 miles northeast of Greenville, was dry and abandoned at a total depth of 3,342 ft.

In McLennan County M. M. Russell's No. 1 Lindsay, G. H. Robertson Survey, was dry and abandoned at a total depth of 415 ft.

In Trinity County McAlpine's No. 1 Dilley, J. Grissett Survey, was dry and abandoned at a total depth of 2,386 ft.

NORTH TEXAS COMPLETIONS

Archer County

In the K.M.A. field Hammon, Hanlon & Buchanan's No. 5 W. P. Ferguson, 3,784-3,927 ft., 520 bbl. H. A. Schaeffer Oil Co.'s No. 5 W. P. Ferguson, 3,804-70 ft., 488 bbl.

Young & Bernhard's No. 2 H. L. Morrison, 1,293-97 ft., 18 bbl. S. H. Fagadau No. 1 Mrs. Cordie Melugin, dry and abandoned at 1,161 ft.

Clay County

Wildcats: E. N. Costley and others' No. 1 C. T. Taylor B, dry and abandoned at 1,406 ft. E. C. Norwood and others' No. 1 H. C. Shipley, dry and abandoned at 5,066 ft. Claycotex and others' No. 1 Petrolia townsite, dry and abandoned at 1,202 ft.

(Continued on Page 81)

Kansas Developments

By
DAL DALRYMPLE

Open Arbuckle Area, Cowley County, North of Hittle Pool

With the lifting of the state-wide shutdown of producing wells last Friday, normal operations were resumed in the Kansas oil fields and by the week end three producers had been completed. A large number of additional wells were in the pay zones, were being acidized and tested and were due for completion within the next few days.

The first wells to be completed following cessation of the shutdown period were:

Shell Oil Co.'s No. 3 Burmeister, NE NW SE Section 3-17-11w, Kraft pool, Barton County. It produced 47 bbl. of oil in 24 hours from Arbuckle lime at 3,361 ft., total depth.

Shell Oil Co.'s No. 2 Sellers, NE cor. Section 31-19-1w, Ritz-Canton field, McPherson County, good for 220 bbl. of oil daily from chat at total depth of 3,989 ft.

Herndon's No. 2 McGlynn, C W½ W½ NW SW Section 4-20-9w, Chase field, Rice County, good for 245 bbl. of oil in 24 hours from Arbuckle lime at total depth of 3,250 ft.

A Comanche County wildcat was reported abandoned at Kerlyn Oil Co. and others' No. 1 McMoran, C SE NW Section 25-34-16w, about 16 miles southwest of the Medicine Lodge gas field in Barber County. The McMoran was reported to have topped Arbuckle lime at 5,764 ft. and was dry at 5,808 ft., total depth.

Another wildcat failure was recorded at Bradley Oil Co.'s No. 1 Dolecheck, CEL SE NW Section 26-16-12w, Barton County. It was reported to have found water in basal sand at 3,388 ft., total depth. Location is about 2¾ miles southeast of the Beaver pool.

Discovery in Cowley

A new Arbuckle-lime area was found in Cowley County at Roth Oil & Gas Co.'s No. 3 Gretsinger, SW NE NE Section 15-31-4. Arbuckle lime was topped at 3,461 ft., was drilled to 3,466 ft., oil rose 500 ft. in the hole in 30 minutes, later rising to 1,500 ft. in the hole. Location is about ¼ mile southwest of the Sherwood pool, where four wells are productive from Burbank sand at an average depth of 3,015 ft. Nearest Arbuckle-lime production is in the rich Hittle pool, about 2 miles southwestward.

Discovery of a new pay horizon in the Bloomer field of Barton, Ellsworth and Rice counties was reported at Polhamus & Shields' No. 1 Matthews, CSL SW SW Section 19-17-10w, on an Ohio Oil Co. farmout.

Oil was reported showing in the hole from conglomerate at 3,310 ft. It was deepened to Arbuckle lime at 3,315-17 ft., total depth. Operators set casing and were preparing to test. It not only will give the field a new zone if production is proven in conglomerate, but will extend the productive limits ¼ mile northward. Other production in the field is from the Lansing-Kansas City and Arbuckle horizons.

Decision was due soon at a wildcat that has attracted considerable interest. It is Cities Service Oil Co.'s No. 1 Robert, C SE¼ Section 31-21-15w, about 10 miles south of the Pawnee Rock pool in Pawnee County, and about 3 miles east of Larned. It found Arbuckle lime at 3,924 ft., had slight saturation in cores to 3,936 ft., total depth, set 7-in. casing on top of the lime and was to make production test.

Ellsworth Outpost Testing

Fate of another wildcat was to be known soon, as operators were due to test Duwe & Farris and Central Petroleum Co.'s No. 1 Schepmann, CSL SW NW Section 27-17-10w, about 1½ miles northeast of the Stumps pool in Ellsworth County. It was reported to have found Lansing lime at 2,996 ft., with oil showing, and to have drilled Arbuckle lime at 3,322-25 ft. before setting casing.

The Iuka pool in Pratt County apparently was defined at Atlantic Refining Co. and others' No. 1 Hacker, CEL SE SW Section 11-27-13w, ½ mile south of production. The hole filled with salt water after plug set in 7-in. casing at 4,355 ft. was drilled out and the outpost was scheduled for abandonment. This well had been heralded as an extensioner of the Iuka pool prior to drilling the plug, as an oil-saturated core had been recovered from Simpson dolomite at 4,355-66 ft., total depth.

A wildcat 2 miles north of the Bemis field, Ellis County, was reported to have found sulfur water at 3,530 ft., total depth, and was due for abandonment. It was Helmerich & Payne's No. 1 Simpson, NE NE SE Section 3-11-17w, on a farmout from Margay Oil Corp. Arbuckle lime was topped at 3,520 ft.

Wildcat Completions

Goodland Independent Gas Co. completed another gas discovery well in the Goodland district, Sherman County. It was No. 1 Wilcoxson, SE SE NW Section 27-8-39w, completed for 25,000 cu. ft. of gas at 1,100 ft., total depth. The first gas well completed by the company in Sherman County was in Section 30-8-39w.

Kerlyn Oil Co. and others' No. 1 McMoran, C SE NW Section 25-34-16w, wildcat in Comanche County, found Arbuckle lime at 5,764 ft., had nothing showing in cores at 5,781-92 ft., and was dry and abandoned at 5,808 ft.

I. W. Murfin's No. 1 Zajic, C S½ SW NE Section 31-16-10w, Ellsworth County wildcat, had a hole full of water and was abandoned at 3,376 ft., total depth. Slight showings of oil were reported at 3,030 ft., 3,095 ft. and 3,195 ft.

Rice County

Gulf Oil Corp.'s No. 6 Coffman, C E½ NE SW Section 5-20-9w, Chase field, Rice County, was bottomed at 3,259 ft., had a slight showing of oil and 2,600 ft. of water in the hole, and was abandoned.

Lauck & Moncrief and others' No. 1 Wilhaus, SW SW NE Section 5-21-7w, Wherry area, found conglomerate at 3,324 ft., Mississippi lime 3,353 ft., and was dry and abandoned at 3,362 ft., total depth.

Russell County

Saco Oil Co.'s No. 3 Gurney, SW cor. Section 23-14-14w, Gurney pool, Russell County, topped Lansing-Kansas City lime at 2,947 ft., total depth 3,028 ft., was treated with acid, pumped 367 bbl. of oil in 8 hours and was completed for potential of 1,101 bbl.

Cowley County

Phillips Petroleum Co.'s No. 3 Starkey, NE NW SE Section 16-30-4, Rock pool, Cowley County, failed to find production and was dry and abandoned at 2,930 ft., total depth.

Greenwood County

Sinclair Prairie Oil Co.'s No. 58 Browning, NW SW NW Section 20-22-10, Browning area, Greenwood County, was completed at total depth of 2,365 ft., pumping 25 bbl. of oil in 24 hours. It found Bartlesville sand at 2,291-2,356 ft.

First Reports of New Work

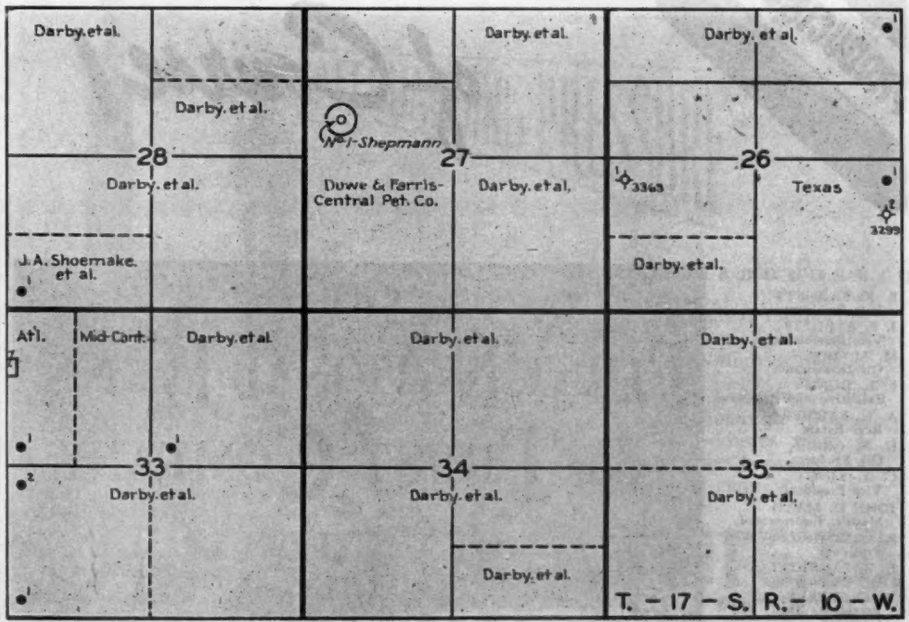
While completions declined sharply due to the shutdown, only a few operators delayed starting new tests they had planned. Twenty-two first reports were filed the past week.

C. L. Sheedy and others' No. 1 O'Neil, SE SW NW Section 34-8-19, was moving in machine. This wildcat is in the Kansas sector of the Forest City basin, near Winchester, Jefferson County.

Joe Williinbring and others' No. 1 Ramey, NW NW SW Section 17-15-23, wildcat west of Spring Hill, southern Johnson County, was drilling below 805 ft.

Charles Barker's No. 1 Gregg, SW NW SE Section 35-25-12, wildcat near Neal, Greenwood County, was shut down at 1,212 ft.

(Continued on Page 98)



Midcontinent Map Co., Wichita

Duwe & Farris and Central Petroleum Co.'s No. 1 Schepmann, Section 27-17-10w, northeast of the Stumps pool, Ellsworth County, was bottomed at 3,322 ft. in Arbuckle lime and due to test

CLAY COUNTY, TENNESSEE

(Continued from Page 33)

horizon, Ordovician, Mississippian and Quartenary systems.

The next 20 pages in the bulletin are devoted to discussion of structural geology giving details of regional features, the major structural features and includes a geologic structural map on the base of the Chattanooga shale. This chapter closes with brief descriptions of numerous local structures in eastern Clay County.

Oil and gas development in Clay County is traced in considerable detail and the most important productive areas are listed.

PRODUCTIVE AREAS IN CLAY COUNTY

Name—	Discovery date	Present status
1. Willow Grove	1923	Abandoned
2. Tinsleys Bottom	1924	Abandoned
3. Peterman Bend	1925	Producing
4. Lillydale	1926	Producing
5. Mill Creek	1926	Abandoned
6. Fox Springs	1926	Abandoned
7. Kettle Creek	1927	Abandoned
8. Ashburn Creek	1927	Abandoned
9. Irons Creek	1927	Producing
10. Celina	1928	Producing
11. Mitchell Creek	1929	Abandoned
12. Pine Branch	1937	Producing
13. Goodpasture Bend	1937	Producing
14. Arcott School	1938	Producing
15. Turkey Creek	1938	Producing

Several sketch maps are included in the bulletin showing well locations and subsurface structures of several fields.

The next feature described is the petroleum geology. Rocks ranging in age from the upper part of the Knox dolomite group to the upper part of the Cannon limestone, inclusive, have been commercially productive in this area.

A graph showing the stratigraphic position and distribution of producing horizons is shown. Source beds and reservoir rocks are discussed and the chemical analyses of the producing horizon is tabulated.

A survey of the structural data in the past and present productive areas in Tennessee points conclusively toward the importance of geologic structure in the accumulation of oil and gas in commercial quantities. This relationship has been pointed out by Lusk and the present study definitely supports his generalizations for the state. An inspection of the structural maps of the individual fields in Clay County, contoured on the base of the Pencil Cave horizon, demonstrates the intimate association of production and anticlinal conditions in the upper Cumberland. Practically all of the oil in this general region has come from small, sharp upwarps, with vertical closures of 10 to 20 ft. and areal extent of 10 to 100 acres. While not all domes have been productive, there has been no significant production in areas which are definitely known to be structurally low, with the possible exception of small production in the upper part of the Knox dolomite group. In some areas, such as Tinsleys Bottom, the structural conditions were poorly defined and only after drilling had progressed far enough to present valuable subsurface data was the production proved to be anticlinal. There have been no fields, however small, and very few productive wells in Clay and adjoining counties which have failed to substantiate the close relationship between commercial accumulation of oil to structural upwarps in the rocks.

Methods of Exploration and Production

The usual straight commercial lease is the standard oil and gas form used in Clay County. In a number of cases the leases carry drilling commitments within a year. The average lease, however, may be obtained by a minimum annual rental per acre and one-eighth royalty contract. In most cases the county records are good and lease titles may be certified quickly. On January 1, 1939, approximately one-half of Clay County was under lease.

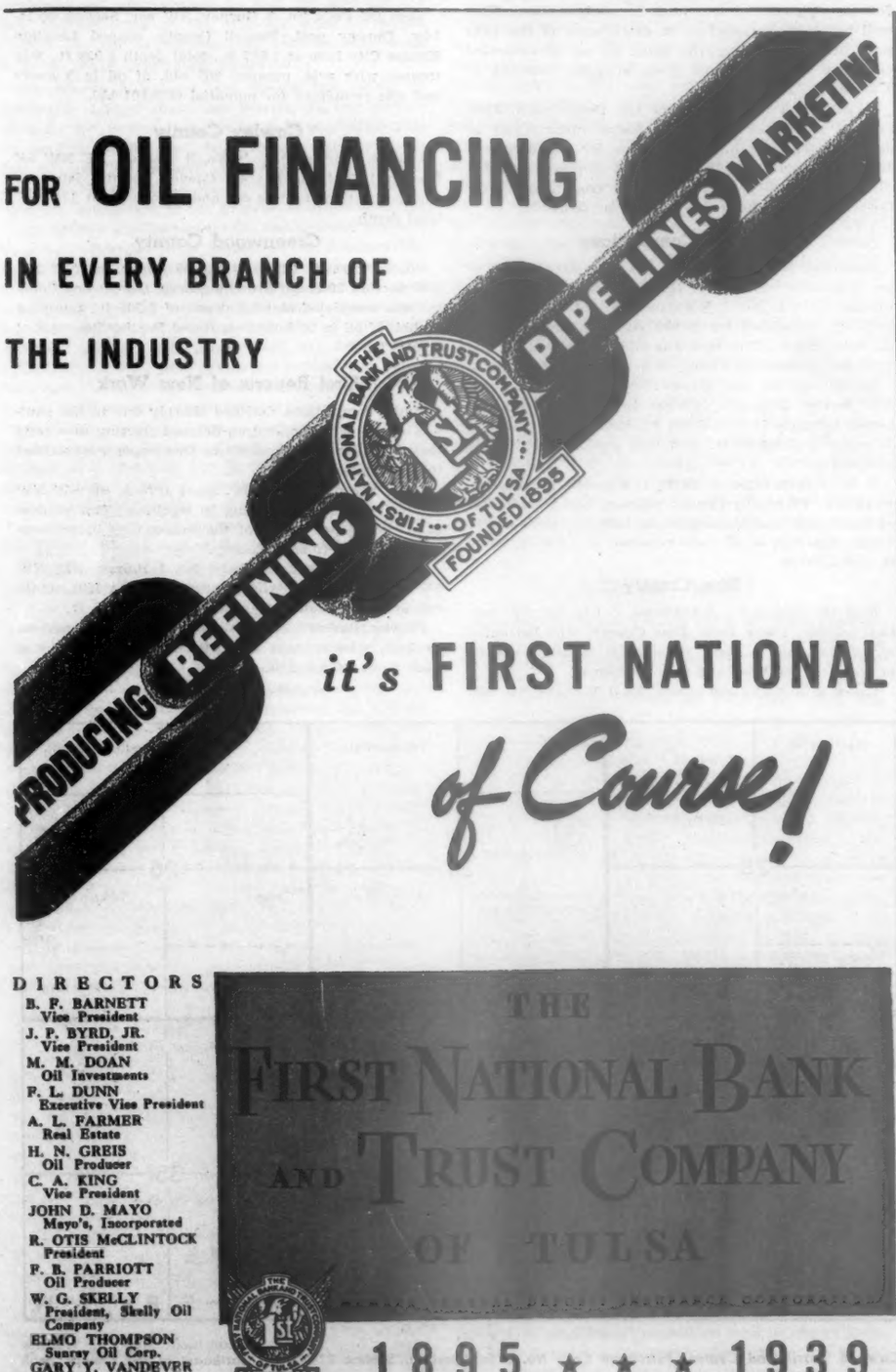
Drilling problems in Clay and adjoining counties are essentially the same as those encountered in all areas in which a limestone section is drilled. The typical section drilled in this area offers no unique problems. Past experience has pointed toward only one part of the section which may prove to be troublesome. The driller should proceed with caution as the Pencil Cave horizon is approached. The upper member of the Carters limestone, which lies directly below the easily recognizable Mud Cave horizon, is generally cherty limestone, ordinarily the bit will be worn out of gage. When a full gage bit is run in the hole, the tools are liable to stick. Several tests in this general area have been lost and in many cases progress has been retarded by fishing jobs at this horizon. Bits should be tested every 2 ft. while drilling this zone.

For the average shallow well in Clay and adjoining counties, 2,000 ft. or less, cable-tool rigs are said to be the most economical and efficient. The ordinary rig will drill 40 to 50 ft. in 24 hours. The majority of rigs used at present in this area are of the spudding type and are powered by gasoline engines. A few of the rigs have walking beams and are powered by steam engines.

A core-drilling rig was tried but the presence of heavy gas and numerous blowouts made it necessary for the operators to temporarily abandon this well. Circulation was lost at a number of places and indifferent drilling progress maintained. No attempts have been made to drill the Paleozoic section of middle Tennessee with heavy rotary equipment.

The average cost for drilling test wells in this area varies between $1.50 and $2.50 per foot. The usual price for reaming is one-half the drilling price per foot.

Surface and fresh water is cased off with at least 8¼-in. casing, in order that the upper and lower Sunnybrook horizons may be drilled with a minimum of water in the hole. The general



absence of water in the Black River and Stones River groups allows the setting of 6¼-in. casing just below the Pencil Cave horizon to prevent it from sloughing down the hole. An oil string of 4½-in. casing should be set just above the pay on a packer. This last string is to prevent leakage in the open hole between the 6¼-in. casing seat and the pay horizon. The practice of cementing casing is not followed in this area.

There is no well-established method of tubing wells in this general area. Wells should be tubed so that the bottom of the working barrel is just above the top of the highest paying zone. The presence of a certain amount of paraffin in all of the oil makes it advisable to keep live oil over the pay zone to prevent the sealing of the pay by separation of the paraffin from the oil as it leaves the productive zone. It is quite probable that paraffin sealing has been a factor in the rapid decline in many wells in the upper Cumberland district.

In most cases, after the production of the well has settled, the casing head is left open to allow the escape of gas which is liberated from the oil. If this is not done, the back pressure resulting from the accumulation of this gas seems to interfere with the normal production of the well. Wells in which the oil rises to a considerable height in the hole must be carefully tubed. A small amount of agitation on the oil in the well will result often in a sudden flow with the consequent loss of oil. A considerable amount of the flush production of many wells in the upper Cumberland district has been lost this way. Wells should be drilled with an oil saver in place.

Shooting of good oil shows is a common practice in the upper Cumberland district. While it has generally helped the production, some wells have been ruined, or the production materially lessened, probably due to the compaction which results from the shooting. In cases like these treatment with acid following the shot would probably reopen the producing zone.

The few attempts of acidizing producing horizons or good shows in Clay County have not been successful. In most cases the lack of accurate drilling records has probably contributed largely to these failures. Much better results may be obtained if samples are available from the zone to be treated. Most of the producing horizons in the upper Cumberland district are rather pure limestone, 75 to over 90 per cent calcium carbonate, and there is no apparent reason why intelligent acid treatment would not materially increase production in a large number of wells.

The oil in this district is relatively high gravity, ranging from 38° to over 44° A.P.I. The color varies from dark brown to green and light green, the later color being the most common. The few analyses available show a sulfur content of less than 0.2 per cent. The gasoline content is high. Crude topping methods used in the area indicate 30 to 40 per cent of gasoline.

More than 40 miles of pipe lines were laid in Clay and adjoining counties during the development in 1926-28. The subsequent decrease in exploration, due largely to economic conditions, together with the steady decrease in production from the older fields, made it necessary to remove those pipe lines several years ago. At present the oil is transported from the area by tank trucks. Recently, the greater part of it has been trucked to Glasgow, Ky., 45 miles northwest of Celina, from where it is piped into a refinery at Louisville, Ky. Some of the oil is trucked to Algood, about 35 miles southeast, thence by tank cars over the Tennessee Central Railroad to a refinery at Nashville. Small amounts have been shipped to the refinery of the Russell Producing Co. near Sunbright, in Morgan County.

The price of Clay County crude oil is governed largely by the posted price in western Kentucky. During the spring of 1939 the average price for this oil was $1.05 per barrel at the well.

Since 1923, when oil was discovered at Willow Grove at 421 ft., about 100 ft. above the Pencil Cave, production has been extended to a depth of about 800 ft. below the cave. Most of the production has come from depths of less than 250 ft. below the base of the Trenton, although some oil has been found below this depth. Since relatively few wells have tested the section below the top of the Ridley limestone, there is, obviously, no conclusive proof that this section would not be as productive as the younger rocks. Certainly there is little lithologic difference between the upper and lower parts of the Stones River group.

Consideration has been given to the possibilities of finding oil at greater depths than production has been found in the past. The presence of commercial oil or encouraging shows in the upper part of the Knox dolomite group is believed to justify testing the upper 500 ft. of this section, which, over most of Clay County, will be penetrated at depths of less than 2,300 ft. Possibilities below this depth are entirely unknown. A carefully drilled exploratory well would present valuable data on the general possibilities of these lower horizons.

PROMISING AREAS

Eastern Clay County

Since the publication of the structural map of eastern Clay County in 1923, many of the more promising structures have been drilled. There remain, however, several areas which are considered worthy of further investigation. The areas listed below do not exhaust the possibilities of this part of the county. Detailed work would undoubtedly prove the presence of other meritorious structures. It is recommended that the following areas be investigated:

Peterman Bend.—Strong north dips shown in the eastern bank of Obey River suggest the possibility of drilling sites between state Highway 53 and the old drilling.

Neeley dome.—According to the record in the files of this division V. D. Neeley's No. 1 (224) was abandoned at 160 ft. The successful explorations at Fox Springs would seem to justify a deeper test provided, of course, the Neeley dome is checked before drilling.

Smith Creek dome.—Strong dips, which bring the Leipers formation to the surface as an inlier, indicates closure in the area. R. A. Coalson's No. 1 (51) and the Riley Kerr (152) do not appear to have been well located, and it is probable that this structure has not been thoroughly tested. The dome deserves careful attention.

Myers dome.—Checked against Perry's structural map of eastern Clay County, Owens-Mitchell and others' No. 1 Jim Myers (240), did not test the Myers dome. The closure is the same as on the Fox Springs dome, one of the most productive structures in Clay County.

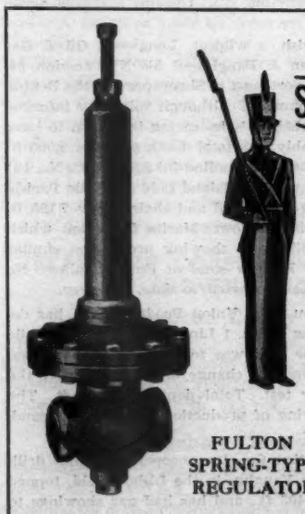
Grogan Hill dome.—The absence of any reliable datum plane leads the present writers to question the presence of this structure. One well, Baskin and others' No. 1 Mrs. Estis Coffee (52) has been drilled in this area. The division has been unable to secure any data on this test than the reported depth of approximately 800 ft. Shallow wells to the top of the Chattanooga shale may be the most efficient method to check this structure.

Wilburn dome.—The presence of this structure is substantiated by strong dips in the Chattanooga shale. Harrison and others' No. 1 Wilburn heirs (336) was temporarily abandoned at 472 ft. because of heavy gas. This test was well located on structure. At least the lower Sunnybrook and Black River-Stones River horizons, which have been productive in the nearby Jouett Creek and Ashburn Creek domes, should be tested on this upwarp.

Walker Ridge dome.—The Mich-a-Tenn Oil Co.'s No. 1 Clay County Farm (50) and Brown Brothers' No. 1 J. K. Walker (332) appeared to have been located too far north to have tested this structure. The proximity of this dome to the Peterman Bend area recommends the possibilities of a test more favorably located on structure.

Western Clay County

The size and general configuration of the domes and anticlines in western Clay County, west of Cumberland River, are strikingly similar to those which have been, or are, productive in eastern Clay County. Because of more accessible control, certain of these structures are more sharply defined than others. It is recommended that the structural features of these upwarps be studied and checked in detail. As previously pointed out, there are no geologic reasons why the structures in the western part of Clay County should not be as productive as those in the eastern part of the county.



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North Louisiana, Arkansas

Important Discoveries Made In Mississippi and Arkansas

By GEORGE WEBER

SHREVEPORT, La., Sept. 4.—Completion of a wildcat in the Smackover lime of South Arkansas, and discovery of oil in the Annona chalk in Yazoo County, Mississippi, were features in an important week of discoveries in this district. In addition to the two new fields, the latter of which will probably bring in Mississippi's first commercial oil production, the Buckner field of Columbia County, Arkansas, was extended 1¼ miles; two wildcats in Union and Ouachita counties had showings of oil in the Graves sand and Smackover lime respectively. North Louisiana's interest centered around a deep wildcat in the Elm Grove area of Caddo Parish, showing gas, and a tight wildcat which has set casing in Bossier Parish.

Mississippi Strike

Union Producing Co.'s No. 1 G. C. Woodruff, a wildcat, 9 miles south of Yazoo City in Yazoo County, and 36 miles northeast of Vicksburg, recovered oil on a drill-stem test in the Selma or Annona chalk, and promises to bring Mississippi its first commercial oil field. The operators cored at 4,540-60 ft., recovering 17 ft., of which the upper section showed a light gray lime interbedded with 8-in. to 1-ft. streaks of oil sand. The bottom section of the core consisted of dark gray sandy shale. On a 15-minute drill-stem test at 4,540-60 ft., using 1¼-in. chokes on top and bottom, the recovery was 42 thribbles of 32.8-gravity oil. The working pressure was 14 lb. at the end of the testing period. Operators have set a string of 7-in. casing at 4,538 ft., and the well will be drilled in this week for a production test.

The wildcat is on a structure discovered through surface geology, and later checked with seismograph data. The top of the Wilcox formation (Teritary) was at 1,600 ft., and the Midway was topped at 3,600 ft. The well's location is C W½ SW Section 13-10n-3w.

New Columbia Pool

South Arkansas gained another Smackover lime field during the week with the completion of Atlantic Refining Co.'s No. 1 Pine Woods Lumber Co., the first lime strike in the Smackover trend this year. The well came in gaging 22 bbl. hourly through a 18/22-in. choke, with tubing pressure of 750 lb. and casing pressure 1,150 lb. The gas-oil ratio is 1,250 cu. ft. per barrel. The oil has a gravity of 43.5, and is similar in characteristics to other Smackover lime production from Magnolia, Buckner and Atlanta. The test, with an elevation of 220 ft., topped the following markers: Wilcox, 533 ft.; Midway, 1,156 ft.; Arkadelphia, 1,720 ft.; Nacatoch, 1,843 ft.; Saratoga, 2,190 ft.; Glen Rose, 2,780 ft.; Tokio, 2,890 ft.; Massive anhydrite, 4,050 ft.: Buckner, 8,753 ft.; and Smackover lime, 8,788 ft. The first porosity in the lime was encountered at 8,801 ft., and the hole was carried to a total depth of 9,002 ft. A string of 5½-in. casing was cemented at 9,000 ft., and perforations were shot at 8,861-73 ft., using 56 shots. The well is shut in at the week-end, awaiting erection of storage. No name has yet been assigned to the field, located 10 miles southwest of Magnolia, and near the towns of Experiment and Macedonia. Further development is expected to begin shortly.

Ouachita Test

In Ouachita County, Lion Oil Refining Co. tested a slight show of oil in No. 1 Annie, SE SE Section 29-15-17, a Smackover lime test 4 miles west of Smackover field production at Louann, and situated in the old abandoned shallow McDonald pool. The Buckner was topped at 5,394 ft. and showings of oil were reported further up the hole at 3,358-79 ft. and 4,495-4,545 ft. A drill-stem test at 5,641-54 ft., using ⅝-in. chokes, top and bottom, showed recovery of 6½ joints of mud and a rainbow of oil in 15 minutes. No working pressure was reported.

Nearby in Union County, another Lion wildcat, No. 1 Hill, SE cor. SE NW Section 6-18-13, a workover from an old gas well formerly bottomed at 2,563 ft., has 5-in. casing set at 3,056 ft., and perforations have been shot at 2,674-77 ft. for a test.

Buckner Extension

The Standard Oil Co. of Louisiana was successful in extending the Buckner field 1¼ miles, as the company's No. 1 Nancy Johnson and others, SW cor. SW SE Section 9-16-22, came in flowing 90 bbl. of oil in 2 hours through open tubing. The well later gaged 10 bbl. hourly through a 13/64-in. choke, with casing pressure 100 lb. and tubing pressure 260 lb. The gas-oil ratio is 351 cu. ft. per barrel, and the oil contained 2 per cent basic sediment.

The outpost topped the Buckner formation at 7,007 ft., the Smackover lime at 7,245 ft., the first porosity in the lime at 7,248 ft., and was drilled to a total depth of 7,272 ft. After running 6-in. casing the well was swabbed to bottom with 2,000 ft. of oil rising in the hole after standing over night, with casing pressure 125 lb. and tubing pressure 25 lb. It was treated with 3,000 gal. of acid, and the casing and tubing pressures were equalized at 1,900 lb. when the well was reopened. It cleaned itself and flowed the gages given above. This is the first important extension to the Buckner field which lies in eastern Lafayette County and northwestern Columbia County.

North Louisiana

In Caddo Parish, Louisiana, the deep Elm Grove test, Prairie River Syndicate's No. 2-B Hutchison attracted attention with a gas showing. Drilling on the southwest flank of the shallow Elm Grove field, a section of fairly porous oolitic lime was found at 4,545-54 ft. believed to be lower Glen Rose. The cores showed a good odor of gas but no ether cut. The test is coring ahead below 4,575 ft.

In Bossier Parish, a wildcat, Longwood Oil & Gas Co.'s No. 1 Belden & Baughn, C SE NW Section 28-20n-12w, 13 miles northeast of Shreveport, in the Benton area, is causing comment. Although voluntary information is being withheld, 5½-in. casing is known to have been set, presumably at a total depth of about 2,900 ft.

Another "tight" well, Stanolind Oil & Gas Co.'s No. 131 Dillon, drilling in the Pine Island field of Caddo Parish, is reported coring hard sand and shale below 7,125 ft. This test is exploring the lower Marine formation, which held good possibilities of showing production similar to that from the Bodcaw sand at Cotton Valley. No showings have been reported to date, however.

In the Bisteneau field, Union Producing Co. has decided to run casing in No. 1 Lincoln Land Co., a 1-mile west outpost. The well was to have been abandoned early last week, and the change in plans will give the operators another test. Total depth is 5,667 ft. The well had no showing of production in the Pettit sand, topped at 5,232 ft.

Lisbon Exploration Co., Inc., cooperative unit, drilling No. 1 Roberta Vaughn, in the Lisbon field, topped Travis Peak at 5,405 ft., and has had gas showings to the present drilling depth of 5,917 ft. It will explore deeper possibilities in the Pettit lime.

Eastern Texas

In the border counties of eastern Texas, the Waskom field is again watched, as the Arkansas Louisiana Gas Co. drills No. 1 W. B. Taylor, a 1-mile southwest outpost, to the deep gas-condensate production. The Abney zone was drill-stem tested at 4,827-80 ft., with ½-in. chokes top and bottom, and a 20,000,000 cu. ft. daily flow of wet gas, together with brackish water, was recovered at a working pressure of 480 lb. The test is coring ahead below 5,600 ft.

The second well in the newly-discovered Carthage gas-condensate area of Panola County is under way, as Turner & Smith, discoverers of the field, drill No. 1 Panola Development Co. with 10¾-in. casing set at 600 ft. This test is ½-mile north of the No. 1 Bird, discovery well.

Estimated Production

Estimated daily gross production all companies week ending September 2:

NORTH LOUISIANA

	Bbl.
Bellevue	475
Caddo light	4,330
Caddo heavy	2,575
Converse	550
Cotton Valley light	*5,450
Cross Lake	1,825
De Soto and Red River	1,165
Elm Grove	275
Haynesville	2,780
Holly	90
Homer	2,750
Lisbon	2,075
Pleasant Hill	85
Rodessa	9,430
Sarepta-Carterville	†375
Sligo	295
Sugar Creek	140
Urania	2,585
Zwolle	1,640
Total	38,890

SOUTH ARKANSAS

Atlanta	325
Buckner	250
Champagnolle	1,500
El Dorado	1,645
Lewisville	700
Lisbon	240
Magnolia	1,870
Miller County	240
Nevada	595
Rodessa	3,230
Schuler	3,350
Smackover light	1,900
Smackover heavy	14,600
Stephens	520
Troy	1,290
Urbana	1,030
Village	Shut in
Total	33,195

Texas side of Rodessa field, 7,145 bbl.
*2,925 bbl. is distillate.
†150 bbl. is distillate.

NORTH LOUISIANA COMPLETIONS

Caddo—Caddo Parish

J. M. Buckler's No. 1 Barrett and others, 777 ft. W and 150 ft. S of NE cor. Section 11-20-16, dry and abandoned at 1,563 ft. A. R. Hancock's No. 6 Standard Oil Co. fee, 1,410 ft. E and 770 ft. N of C Section 18-21-15, 85 bbl. per hour through open tubing, total depth 1,668 ft. Joe G. Strahan and others' No. 3-A Stiles, 1,908 ft. N and 723 ft. E of SW cor. Section 29-21-16, temporarily abandoned 2,150 ft.

Zwolle—Sabine Parish

H. C. Cummings' No. 1 Garcia, SE NW SE Section 4-7-13, flowing and pumping 80 bbl. per day, total depth 2,320 ft.

Wildcat—Sabine Parish

George Ellis' No. 1 Walker, 500 ft. out of NW cor. NW SE Section 8-4-12, salt water, abandoned at 2,837 ft.

Munroe—Union Parish

Interstate Natural Gas Co.'s No. 94 fee, 3,340 ft. E and 660 ft. S of NW cor. Section 33-20-3e, 3,000,000 cu. ft. of gas, rock pressure 985 lb., total depth 2,205 ft.

(Continued on Page 94)

Texas and Louisiana Gulf

By NEIL WILLIAMS

Orleans and La Fourche, La., Areas Have Good Prospects

HOUSTON, Tex., Sept. 4.—Developments in the Texas and Louisiana sectors of the Gulf Coast district were overshadowed in importance to Gulf Coast operators by the showing in a wildcat well in Mississippi, which has given promise of opening the first oil production in that state. In the Gulf Coast area, production tests were under way in two prospective pool openers in La Fourche and Orleans parishes, coastal Louisiana, while in Texas an important extension was marked up for the South Cotton Lake field in Chambers County.

On the Texas Coast, Salt Dome Oil Corp. opened the way for additional drilling in the South Cotton Lake area, Chambers County, with the completion of No. 1 Williams, 1 mile east of the field, in the James Grant Survey. Sand and shale showing oil were cored in the Marginulina-Frio formation at 6,491-6,515 ft., the total depth, and the well was completed through perforated casing at 6,506-11 ft. During the first 4½ hours after the oil was turned into the tanks, the well flowed at the rate of 24 bbl. of pipe-line oil per day through a ⅛-in. choke under a tubing pressure of 675 lb.

Northeast of the above field and located in the extension area of the Turtle Bay field, Stanolind Oil & Gas Co.'s No. 1 Wilcox, a north offset to the company's No. 1 Lotz, the discovery well, cored sand showing oil and gas at 6,547-55 ft., and 5½-in. casing was cemented at 6,569 ft. Approximately 2,500 ft. south of the field proper, Stanolind Oil & Gas Co.'s No. 1 State, in tract No. 39, was abandoned in a salt-water sand at 6,701 ft.

On the Hilje prospect, Wharton County, Texas Co. was expected to reperforated No. 1 Gerd Peters, a prospective pool opener, in Section 101, E.T.R.R. Survey. The hole was plugged back from 5,300 ft. to 5,243 ft. and the casing perforated at 5,237-42 ft. For 2 days the hole was swabbed but the well failed to show any evidence of oil or gas. Casing had been cemented in the previous week after a drill-stem test at 5,231-59 ft. recovered 590 lb. of pressure and 90 ft. of oil and gas-cut drilling mud.

The newly-opened Martha field, Liberty County, received its second producer when Stanolind Oil & Gas Co. completed No. 1 C. F. Seaberg, a south offset to the discovery well. Casing was perforated at 8,088-92 ft. and the well flowed 250 bbl. of pipe-line oil in 16 hours, flowing through a ¼-in. choke, under a tubing pressure of 1,260 lb. and casing pressure of 1,500 lb.

Further development around the flanks of the South Houston field, Harris County, was assured as Stanolind Oil & Gas Co.'s No. 1 Henry Stati, an outpost on the northeast flank, showed for a producer from a deeper sand. This well was plugged back from a total depth of 9,470 ft. to 7,565 ft., and the casing perforated at 7,553-65 ft., resulting in a flow of an unestimated amount of fluid through a ¼-in. choke. Forty per cent of the fluid was oil, 22 per cent sand, 12 per cent mud, 6 per cent basic sediment and 20 per cent salt water. Working pressure on the tubing built up to 975 lb. and casing pressure 1,150 lb. The well has been killed and preparations are being made to reperforate the casing for another test. The sand section has been identified as the Cockfield.

In the South China field, Jefferson County, Magnolia Petroleum Co.'s No. 1 Broussard, west offset to the discovery well, flowed 37 bbl. of fluid per day of which 90 per cent was distillate and 10 per cent salt water. The test was made through a 11/64-in. choke under a tubing pressure of 2,750 lb. and shut-in casing pressure of 2,900 lb. Casing was perforated at 7,803-10 ft. According to an electrical survey, the best sand section was logged at 7,795-7,807 ft. The well is expected to be killed and retested.

Louisiana Coast

Along the Louisiana coast, Mikton Oil Co.'s No. 1 Martinez, Section 132-15s-17e, on the La Fourche Crossing prospect, was holding considerable attention as the first of a series of production tests was under way. At the close of the week tubing was being run after the casing had been perforated at 10,124-36 ft. with 24 shots. Should the well fail to produce from this horizon, another test is expected to be made at approximately 8,900 ft. where favorable indications were reported on an electrical survey.

In Orleans Parish, W. T. Burton's No. 1 L.&N. R. R., Section 18-11s-15e, reperforated casing at 10,116-24 ft., and the well made one head, blowing wash water with a trace of oil. The hole is being swabbed and the casing may be reperforated. This well was drilled to a total depth of 10,394 ft. and 5½-in. casing cemented at 10,274 ft.

Production from a new sand was opened in the West Gueydan field, Vermilion Parish, by the completion of Magnolia Petroleum Co.'s No. 3 J. B. Ferguson, Section 5-12s-2w. Production was obtained by perforating casing at 6,966-78 ft., and the well is cleaning out through a 10/64-in. choke, flowing 10 bbl. of fluid per hour of which 20 per cent is wash water and the balance pipeline oil. Tubing pressure was 1,075 lb. and casing pressure 1,250 lb. The completion opens the third horizon for the structure as previous production has been from 7,100 and 6,800-ft. horizons.

On the Henderson salt dome, St. Martin Parish, Texas Co.'s No. 12 St. Martin, Section 21-8s-7e, is bottomed at 9,011 ft., and 7⅝-in. casing cemented at 8,617 ft. A production test will be made of a sand section logged by an electrical survey at 8,359-8,442 ft.

The limits of the Eola field, Avoyelles Parish, were further defined as J. Edwards Jones' No. 1 Barrone, 1 mile northeast of the field, was abandoned at 8,715 ft. after having found the Wilcox formation too low to produce. Two oil wells were completed in the field and locations were made for seven new wells. The completions were made by Amerada Petroleum Corp.'s No. 1 William Glaze and No. 2 C. B. Marchive. Of the seven locations, six were made by Amerada and one by Sid Richardson.

Wildcatting along the Tertiary Wilcox trend was given another setback by the abandonment of three wells. In Rapides Parish Thomas D. Humphrey's No. 1 J. J. Krejzl topped the Wilcox at 4,790 ft. and was abandoned at a total depth of 5,050 ft. In Veron Parish W. T. Burton's No. 1 fee, Section 32-1n-6w, is shutdown at 9,065 ft. and is expected to be abandoned, while Nat Hunter and others' No. 1 W. T. Burton was abandoned at 6,518 ft. The Wilcox formation was cored at 6,000 ft.

TEXAS GULF COAST COMPLETIONS IN PROVEN FIELDS

Brazoria County

Hastings field: Stanolind Oil & Gas Co.'s No. 19-C Hiram Moore, sand 6,095-6,105 ft., 241 bbl., ¼-in. choke. Stanolind Oil & Gas Co.'s No. 33-A W. R. Curkett, perforated casing 6,058-78 ft., 515 bbl., ¼-in. choke.

Chambers County

Anahuac field: Humble Oil & Refining Co.'s No. 22 Clark, 7,080 ft., 600 bbl., ¼-in. choke. Turtle Bay field: Stanolind Oil & Gas Co. No. 1 State, 6,701 ft., abandoned.

Fort Bend County

Thompson field: Humble Oil & Refining Co.'s No. 13 Davis, total depth 4,345 ft., 168 bbl., ⅛-in. choke. C. H. Alexander's No. 1 Taylor, 8,100 ft., abandoned. H. M. Naylor's No. 4-B Booth, 8,156 ft., abandoned.

Galveston County

League City field: Phillips Petroleum Co.'s No. 3 Lobit, perforated casing 9,256-58 ft., 204 bbl., ¼-in. choke.

Harris County

Clear Lake field: Humble Oil & Refining Co.'s No. 11-C Humble-West, sand 5,735-5,847 ft., 120 bbl., ⅛-in. choke. Stanolind Oil & Gas Co. No. 2 Sowden, perforated casing 5,848-59 ft., 546 bbl., ¼-in. choke. Fairbanks field: Amerada-Stanolind's No. 5-A Spaulding, sand 6,817-43 ft., 128 bbl., ⅛-in. choke. Amerada-Stanolind's No. 16 E. M. White, perforated casing 6,844-48 ft., 92 bbl., ⅛-in. choke. R. A. Johnston's No. 2 Tom Roberts, perforated casing 6,825½-29 ft., 165 bbl., ⅛-in. choke. Stanolind Oil & Gas Co. No. 1 Schumacher, 7,350 ft., abandoned. Friendswood field: Humble Oil & Refining Co. No. 2 Anderson, sand 5,990-6,047 ft., 456 bbl., ¼-in. choke. Humble Oil & Refining Co. No. 34-B Humble-West, sand 6,020-46 ft., 600 bbl., ¼-in. choke. Humble Oil & Refining Co. No. 37-B Humble-West, sand 5,780-6,047 ft., 600 bbl., ¼-in. choke. Humble Oil & Refining Co. No. 3 J. D. Owens, sand 5,650-6,045 ft., 480 bbl., ¼-in. choke. Pierce Junction field: Rio Bravo Oil Co. No. 34-A J. J. Settegast, perforated casing 3,742-55 ft., 291 bbl., ¼-in. choke. Tomball field: Humble Oil & Refining Co. No. 1-B Lamport, 5,567 ft., 384 bbl., ¼-in. choke. Amerada-Stanolind Oil & Gas Co. No. 3 Juergens, sand 5,565-89 ft., 500 bbl., ¼-in. choke.

Jefferson County

Lovells Lake field: Humble Oil & Refining Co.'s No. 6 Broussard, 7,795 ft., 134 bbl., ¼-in. choke.

(Continued on Page 84)

East Texas Fields

(Continued from Page 76)

Ted A. Norwood and others' No. 7 T. P. Duncan, dry and abandoned at 1,228 ft. J. M. Tanner's No. 11 G. C. Rigsby, 194-216 ft., 5 bbl.

Cooke County

In the Walnut Bend field Cox & Hamon's No. 2-B K. Neu, 5,250-5,396 ft., 706 bbl. Cox & Hamon's No. 3-B K. Neu, 5,240-5,380 ft., 325 bbl. Sinclair Prairie Oil Co.'s No. 12 J. M. Best, 5,296-5,474 ft., 600 bbl.

C. & L. Oil Co.'s No. 3 J. J. Perkins, abandoned location. Pois & Schulz' No. 1 E. A. Felker, dry and abandoned at 1,756 ft. John A. Pace's No. 1 J. T. Donald, 2,881 ft., dry and abandoned. A. D. Robinson's No. 15 J. H. Otto B, 837-51 ft., 56 bbl. McDaniels & Breechrel's No. 1 Joe Weisman, 699-710 ft., 70 bbl. (correction).

Jack County

Holbrook & Wood's No. 1 Rosa McDonald, dry and abandoned at 475 ft.

Montague County

A wildcat, E. B. Madden's No. 1 Harry Smith, dry and abandoned at 4,748 ft.

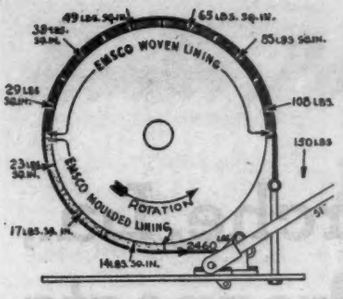
Wichita County

In the K.M.A. field E. C. Oil Co.'s No. 14 Anna Mangold, 3,787-3,821 ft., 1,450 bbl. A wildcat, Bridwell Oil Co. No. 1 Hiram Willis B, dry and abandoned at 1,600 ft.

Magnolia Petroleum Co.'s No. 151 H. Reilly, 1,322-50 ft., 370 bbl. Fain & McGaha Oil Corp.'s No. 4-B E. P. Griffin, 1,796-1,810 ft., 15 bbl. Montgomery and others' No. 1 F. C. Dodson, dry and abandoned at 1,410 ft.

Young County

T. D. Humphrey's No. 2 T. C. Tucker dry and abandoned at 4,471 ft. Baker & Camp's No. 3 G. R. Smith, 641-706 ft., 24 bbl.



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Among the Drilling

DELTA DRILLING CO. has rigs active in three South Arkansas locations: Lion Oil & Refining Co.'s No. 1 Annie, a wildcat, is below 4,800 ft. in the old McDonald pool, 4 miles west of Louann in Ouachita County. A second wildcat, Lion's No. 1 Hill, near Lawson, Union County, deepening from an old gas sand at 2,563 ft., this week is testing a show of oil and gas in the Graves sand at 2,674-77 ft. The third Delta rig is drilling for the same operators in the Schuler field.

J. I. ROBERTS DRILLING CO., of Shreveport, La., is drilling a deep Smackover lime wildcat in Union County, Arkansas, Joe Modisett and others' No. 3 Union Sawmill, in the New London area. Another rig is drilling for Phillips Petroleum Co. in the Schuler field of the same county. In North Louisiana a deep test, Arkansas-Louisiana Gas Co.'s No. 1 Gayoso, is being drilled with a rig in the Bisteneau field of Bienville Parish. Texas operations include active rigs in Jefferson, Marion County, and Bay City, Matagorda County.

M. J. DELANEY DRILLING CO., Dallas, Tex., last week brought in a new Smackover lime field in South Arkansas for Atlantic Refining Co. The discovery well, No. 1 Pine Woods Lumber Co., located near the town of Experiment in southwestern Columbia County, is flowing 13 bbl. hourly on a 12/64-in. choke from perforations at 8,861-75 ft.

STAUFFER PETROLEUM CO., of Oklahoma City, has awarded Hugh Pierce, of that city, contract to drill No. 1 Smith, NW NW NE Section 28-7n-8w, wildcat near Verden, Grady County, Okla. Location is on a block of about 6,000 acres, in the Anadarko basin. The objective is Wilcox sand, expected at around 6,500 ft. Original geology was by the late Clyde Becker, of Chickasha, considered one of the best-informed oil men on western Oklahoma geology.

C. M. FITZWILLIAM, who proposes to drill a wildcat near Bethany, Harrison County, Mo., on a large block of acreage assembled by H. V. Elwell, Wichita, Kans.* operator, has asked for extension of time to October 1, pending completion of additional plans to drill. Location is in the Forest City basin.

SHEPARD & THOMAS, of Holdenville, Okla., have started work at No. 1 Kiesef, SW SE NE Section 35-8-8, about 3 miles northwest of Holdenville, in Hughes County. The well is being drilled by J. M. Corbett, eastern oil man, and associates. It is to test Calvin sand and other shallow formations.

ZEPHYR DRILLING CO., eastern Texas contractor, has been given the drilling contract for a 6,000-ft. deep test to the Glenrose horizon in Limestone County, eastern Texas. It is being sunk for Murray Samuel, of Dallas, and S. J. Taylor, of Tyler, and is about 4 miles south of Groesbeck on the most easterly fault of the Thornton area. Closure on the structure is said to be proved by several shallow gas-producing wells. Several major companies hold acreage in the area and it is reported that a geologist will be stationed at the well during its entire drilling time.

LUTIS DRILLING CO., Tyler, Tex., has the contract for a new Woodbine-sand wildcat test to be drilled in the Tatum area of northeastern Rusk County, eastern Texas. A group of East Texas operators, led by a Mr. Kruger, have assembled a block and plan to carry the test to 4,000 ft. Starting time for the wildcat has not been announced pending several dry-hole contributions from interested major companies in the area.

C. A. NEWBORN has received contract for a deep wildcat test in northern Fannin County, North Texas. A block of 10,000 acres has been assembled by A. A. Palmer, Ray Peeler and H. A. McDougal, and the location is near the center of the A. G. Allen 50-acre tract just north of Bonham and southeast of Telephone. A 122-ft. derrick will be erected and actual drilling is scheduled to commence immediately.

HELMERICH & PAYNE DRILLING Co., Tulsa, drilling Forest Development Co.'s No. 1 Scott, a wildcat test in Reeves County, West Texas, has drilled a section from 4,808-65 ft. which indicates commercial production. A blowout preventer has been installed as the test drills ahead with some free oil showing. Location is in Section 286, Block 13, H.&G.N. Survey.

HARRY L. EDWARDS DRILLING Co. provided the South Cotton Lake field, Chambers County, Texas, with a mile-east extension with the completion of Salt Dome Oil Corp.'s No. 1 Williams. The casing was perfo-

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Contractors

rated at 6,506-11 ft., and the well is flowing approximately 6 bbl. per hour through a ⅛-in. choke. In the same county and located in the extension area of the Turtle Bay field, casing is being cemented in Stanolind Oil & Gas Co.'s No. 1 Wilcox. Location has been made in the same area for Harry L. Edwards Drilling Co.'s No. 1 Sloan, and the rig will be moved to the location as soon as the present well is completed. A new operation is being started in the Lovells Lake field, Jefferson County, for Stanolind Oil & Gas Co.'s No. 1 B. A. Steinhagen, while in the Dickinson field, Galveston County, contract was received from Midstates Oil Co. for another deep test.

LON H. CRON is drilling below 4,200 ft. in Continental Oil Co.'s No. 1 Betty Rosen, a projected 6,500-ft. wildcat test located east of Indianola in Calhoun County, Texas.

E. J. GRACEY has spudded Shell Oil Co., Inc.'s No. 1 Kirby-West Lumber Co. in the Ace field, Polk County, Texas, while in the Lovells Lake field, Jefferson County, another operation is reported for the same company.

CRON & GRACEY have two rotaries operating in coastal Louisiana. One rotary is in the Lake Long field, La Fourche Parish, for Fohs Oil Co., while the other is in the Gibson field, Terrebonne Parish, for Shell Oil Co., Inc.

RUTHERFORD DRILLING CO. is rigging up for No. 1 D. Garcia, a semiwildcat test about 1 mile south of the Ben Bolt field in Jim Wells County, Texas. The well is in La Trinidad grant, and is being drilled jointly with Royal Oil & Gas Co.

MARTIN THOMPSON is rigging up for Midway Oil & Royalty Co.'s No. 1 Annie Schumacher, a projected 7,500-ft. Wilcox test in the S. H. Jack Survey, approximately 12 miles west of Weimar, Lavaca County, Texas. The rotary was moved from Jasper County, where a dry hole was recently drilled for C. B. Bunte and others.

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Southwest Texas District

By
F. L. SINGLETON

Field Extensions, New Pays Feature Southwestern Areas

CORPUS CHRISTI, Tex., Sept. 4.—Extensions and new sand discoveries were indicated for several fields in the Southwest Texas district. New sands were scheduled to be tested in the Ben Bolt and Agua Dulce fields in Jim Wells and Nueces counties, while important extensions were being made in the Colorado and East Plymouth fields in Jim Hogg and Colorado counties.

East of the discovery well in the Ben Bolt field, Jim Wells County, R. B. Bryant's No. 1 W. W. Smith cored oil sand in the regular horizon at 5,268-75 ft., and flowed pipe-line oil for 20 minutes. The hole was cored ahead, logging sand with an oil odor at 5,398-5,404 ft., and oil sand at 5,404-09 ft. The hole was bottomed at 5,450 ft., and casing was cemented on bottom after an 8-minute drill-stem test at 5,394-5,404 ft. recovered 60 ft. of oil and mud, and 650 lb. of working pressure.

One mile west of the La Gloria field, Jim Wells County, Magnolia Petroleum Co.'s No. 1 Dale Maun is coring below 7,233 ft. and gave promise of opening production from a new sand. A drill-stem test at 7,220-30 ft. is reported to have recovered 2,250 ft. of oil and 39 lb. of working pressure in 25 minutes. If the well is completed in this horizon it will be the deepest production opened in the county. Several production tests made in the regular pay at approximately 6,800 ft. proved disappointing.

In the same county, and in the Reynolds field, Walter Goldston's No. 1 Rand Morgan defined the southeast limits of the field when the hole was abandoned at 5,500 ft. Salt water was cored in the main sand section. Seven miles southwest of the town of Ben Bolt, Heyser & Heard's No. 1 Clara Driscoll, which in the previous week showed promise of being a pool opener when it tried to blow out, was abandoned at a total depth of 7,031 ft. after an electrical survey showed unfavorable sand sections. In the recently opened Wade City field, Earl Rowe and others are rigging up No. 1 Maggie McNeill in the Benito Lopez DeJean grant. The well is scheduled to be drilled to a depth of 5,500 ft. to test the lower Frio-Vicksburg sand. The discovery well of the field was completed at a distillate producer at approximately 4,700-4,800 ft.

The first production found on the large King ranch, bordering the northern limits of the Colorado field, Jim Hogg County is apparently assured as Humble Oil & Refining Co. prepares to complete No. 1 King ranch, which is expected to extend the field approximately 4,000 ft. north. This well is bottomed at 3,041 ft. with 7-in. casing cemented on top of the sand section at 3,032 ft. An 18-minute drill-stem test showed 840 ft. of pipeline oil, 90 ft. of oily drilling mud and 35 lb. of working pressure.

Further drilling activity in the East Plymouth gas field, San Patricio County, is anticipated following the completion of Republic Natural Gas Co. and others' No. 1 A. A. Galler, 1 mile southwest of the discovery well and in Section 26 of the Fourth Addition of the Taft farm lands. Casing was perforated at 5,111-13 ft., and the well is flowing wash water with a trace of distillate through ¼-in. choke, under a tubing pressure of 1,760 lb. and casing pressure 2,030 lb. The showing was made in the same sand section in which the discovery well was completed as a dry gas well.

Four new oil wells were listed in the active East White Point field, San Patricio County, and locations were made for several wells. Allen & Morris' No. 1 J. C. Baldwin estate cored oil sand at 5,595-5,611 ft. and casing was cemented on bottom at 5,638 ft. Other wells that are completed in the regular pay include Houston Oil Co.'s No. 1 fee, Plymouth Oil Co.'s No. 1 Lewis and No. 5 Sparks. Increased activity has been brought about by extensions on the southwest and west portions of the structure.

In Nueces County Union Producing Co.'s No. 1 W. H. Wallace, an outpost northeast of production, is bottomed at 7,250 ft. and 7-in. casing has been cemented at 6,840 ft. An electrical survey is reported to have shown favorable indications in a new sand section at 6,616-51 ft.

Three new producers were being added to the Minnie Bock field, Nueces County. C. Andrade's No. 1 Hilliard is testing through perforated casing at 3,818-22 ft. Awoeb Oil Co. and others' No. 2 Bock cored oil sand at 3,807-25 ft., the total depth, and casing was cemented on bottom. C. Andrade's No. 1 Bock was preparing to reperforate the casing after the well showed too much gas in a test through perforations at 3,816-19½ ft.

A new operation was reported in the Riverside field, Nueces County, as Renwar Oil Corp. was moving in materials for No. 1 Wright, Block 5, Wright land subdivision. The well is southwest of Stanolind Oil & Gas Co.'s No. 2 Wilson and northwest of No. 3 Wilson, the only two producing wells in the field. Development of this structure was halted following the abandonment of several wells.

The Rincon field, Starr County, was further defined with the abandonment of Rowan & Hope, Inc.'s No. 1 Dallas Joint Stock Land Bank, in Survey 226, at a total depth of 4,506 ft. Sands showing gas and distillate were logged at intervals from 3,937 to 3,955 ft., but several drill-stem tests were unsuccessful.

The Muralla field, Duval County, recorded its second production as J. B. Blanchard's No. 2 Rogers was completed. Its initial production was 45 bbl. of oil per day, flowing through a 7/64-in. choke. Tubing pressure was 1,250 lb. and shut-in casing pressure 1,550 lb. This well topped the Pettus sand at 4,674 ft. and production was obtained by perforating the casing at 4,735-38 ft.

In the Southland field, Duval County, Hiawatha Oil & Gas Co.'s No. 16 Southland Life Insurance Co. was plugged back from a total depth of 5,923 ft. to 5,320 ft. and the well is flowing gas with a spray of distillate through perforated casing at 5,300-08 ft. The well is flowing through a 5/32-in. choke under a tubing pressure of 1,550 lb. and shut-in casing pressure 1,600 lb.

COMPLETIONS IN PROVEN FIELDS

Aransas-San Patricio Counties

McCampbell field: Corgey & Grote's No. 3 Nelson, total depth 7,140 ft., 78 bbl., 9/64-in. choke. Corgey & Grote's No. 1 Williams-Sikes, total depth 7,150 ft., 73 bbl., 9/64-in. choke. Rantex Oil Co. No. 1 Frank Heuermann, perforated casing 7,123-29 ft., 60 bbl., ⅛-in. choke.

Caldwell County

Salt Flate field: M. R. Tinkle's No. 1 New, total depth 2,678 ft., 60 bbl. of oil, 1 bbl. of water, pumping.

Duval County

Hoffman field: Cox & Hamon's No. 11 Hoffman, perforated casing 2,660-72 ft., 75 bbl., jetting. Magnolia Petroleum Co.'s No. 42 Weil, 2,834 ft., 25 bbl., jetting. Piedra De Lumbre field: Dutex Production Co.'s No. 12 State, 2,218 ft., abandoned. Magnolia Petroleum Co.'s No. 34 Duval County Ranch Co., sand 2,092-2,105 ft., 150 bbl., ⅜-in. choke. S.R.C. field: Transwestern Oil Co.'s No. 26 Duval County Ranch Co., 75 bbl., pumping.

Hidalgo County

Samfordyce field: Brinkoeter Oil Corp. No. 3 George, total depth 3,373 ft., dry and abandoned. L. F. Drake's No. 3 Guerra, total depth 2,970 ft., 132 bbl., jetting.

Jim Wells County

Reynolds field: H. R. Smith's No. 1 H. J. Mosser, perforated casing at 5,148-53 ft., 100 bbl., ⅛-in. choke. South Alice field: Gravis & Buescher's No. 2 Richardson, perforated casing 5,323-28 ft., 40 bbl., 9/64-in. choke.

Guadalupe County

Staples field: Lincoln Petroleum Co.'s No. 1 R. P. Lowman, total depth 3,175 ft., dry and abandoned.

McMullen County

South Callihan field: E. M. Jones' No. 97 Ezzell, perforated casing 1,144-53 ft., 25 bbl., pumping.

Medina County

Chacon Lake field: Charles Wagner's No. 41-A Medina Irrigated Farms, total depth 446 ft., abandoned.

Nueces County

Clara Driscoll field: Buchanan-Blanco Oil Co.'s No. 2-B Gandy, perforated casing 5,658-63 ft. and 5,422-32 ft., 86 bbl. distillate, ⅛-in. choke. J. O. Williams' No. 1 Roberts, 5,750 ft., dry and abandoned. Richard King field: Southern Minerals Corp.'s No. 4-B King, 6,163 ft., 81 bbl., 9/64-in. choke. Saxet field: Sinclair Prairie Oil Co.'s No. 8 Isensee, 4,875 ft., 130 bbl., ¼-in. choke. South Clara Driscoll field: Wellington Oil Co.'s No. 9 Dugger, 6,510-14 ft., 256 bbl., ¼-in. choke.

Refugio County

La Rosa field: Coronado Corp's No. 3 Yarro, perforated casing 5,620-23 ft., 120 bbl., ¼-in. choke.

San Patricio County

East White Point field: Easterwood Production Co.'s No. 2 Foran & Sharp, perforated casing 5,628-30 ft., 144 bbl., ⅛-in. choke. Plymouth Oil Co. and others' No. 1 Mayo, total depth 5,670 ft., 121 bbl., 7/64-in. choke. Plymouth Oil Co.'s No. 5 Solar-Ficke, perforated casing 5,619-23 ft., 138 bbl., 7/64-in. choke.

Starr County

Ricaby field: H. L. Bass' No. 1 Hinojosa, 1,437 ft., 65 bbl., pumping.

Victoria County

McFaddin field: Barnsdall Oil Co.'s No. 33 McFaddin, sand 4,402-16 ft., 124 bbl., ¼-in. choke.

Williamson County

Byersville field: Taylor Refining Co.'s No. 9-B Sladek, total depth 820 ft., abandoned. Taylor Refining Co.'s No. 1 Frerichs, total depth 1,112 ft., abandoned.

Zapata County

Escobas field: Nordan & Morris' No. 47 Gutierrez, sand 1,309-17 ft., 11 bbl., pumping. Mirando Valley field: Interstate Minerals Corp.'s No. 14 Lopez, 1,827 ft., 20 bbl., pumping.

Gulf Coast Fields

(Continued from Page 81)

Liberty County

Hardin field: Atlantic Refining Co. No. 2 Rives, sand 7,531-57 ft., 80 bbl., ¼-in. choke.

Orange County

Port Neches field: Texas Co.'s No. 8 Stark, sand 5,893-5,934 ft., 364 bbl., ¼-in. choke.

Wharton County

Magnet field: Humble Oil & Refining Co.'s No. 18 Cockburn, 5,543 ft., 96 bbl., ⅜-in. choke.

By D. H. STORMONT

Cedar Lake Discovery Tests 237 Bbl. of Oil; Some Water

MIDLAND, Tex., Sept. 4.—A flow of 237 bbl. of oil and 40 bbl. of water from Gaines County's new Cedar Lake pool opener, together with many scheduled completions for the Wasson-Denver-Bennett pool, and a new outpost location for the Slaughter pool featured the week's development in the North Permian basin sector. Prospects of a new producer in the one-well Apco Ordovician pool in northern Pecos County, and reported saturation in Forest Development Corp.'s No. 1 Scott, wildcat in Reeves County, held the interest in the southern basin area.

Possibility that the bottom-hole water had not been completely shut off in Stanolind Oil & Gas Co.'s No. 1 J. B. Rayner, new pool opener on the east edge of Cedar Lake in eastern Gaines County, was indicated when the well showed 40 bbl. of water with its first 24-hour gage of 237 bbl. of oil. The crew was swabbing at last report, attempting to determine the source of the water. The amount of water recovered indicates that the sulfur water encountered at 4,820-30 ft. was not entirely shut off in plugging back to 4,783 ft. In a test at 4,780 ft., before the wildcat had been drilled to 4,830 ft., the well flowed 60 bbl. of oil in 9 hours through the aid of gas jetted from the Yates sand zone. The well is 660 ft. out of the SW cor. of Section 3, Block 30-C, P.S.L. Survey. Considerable lease and royalty trading is reported in the general area of the pool opener, as well as in the western part of Dawson County.

Many wells in the eastern part of the Wasson-Denver area in Yoakum County, which were drilled to the top of the sand and shut in during the shutdown, were scheduled for completion over the week-end. Pushing the southern limits of the Bennett pool farther south, John E. Mabee's No. 8 Willard has been gaged at 2,542 bbl. of oil daily. The well is a north offset to the Mid-Continent Petroleum Corp.'s No. 1 J. G. Comer, which extended the area ½ mile to the south recently.

A new location in the northeast corner and two new producers were reported in the extensive, yet sparsely drilled, Slaughter pool of Hockley County. The location is for Stanolind Oil & Gas Co.'s No. 2-B Slaughter, NW cor. Labor 3, League 40, Maverick County School Lands, northeast corner of production in the pool. Western States Gasoline Corp.'s No. 3 Coons, NW cor. Section 11, Block X, P.S.L. Survey, bottomed at 5,001 ft. in lime, was swabbing and bailing oil coming from 4,920 ft. to the total depth. At 4,950 ft. the well made a flow of 30 bbl. of oil in 15 minutes. Honolulu Oil Corp.'s No. 1-6-52 Mallett Land & Cattle Co., Labor 6, League 52, Scurry County School Lands Survey, at a plugged-back depth of 5,033 ft., swabbed and flowed 55 bbl. of oil and about 2½ bbl. of water in 3 hours.

South Basin

Prospects of a second producer for the Apco pool, the first Ordovician producing area in northern Pecos County, appeared in Magnolia Petroleum Co.'s No. 1 Masterson, in Section 104, Block 10, H.&G.N. Survey. It is a southwest offset to Anderson-Prichard Oil Corp. and Monte Warner's No. 1 Masterson, the discovery well. A core from 4,599 ft. to 4,611 ft. recovered 9 ft. of dolomite, with the bottom 3 ft. porous, fractured and oil-stained. The crew attempted a drill-stem test, and, with the tester open 1 hour, only 36 stands of mud, the bottom 300 ft. of which was oily, was recovered. It is reported to have topped the Ellenburger at 4,596 ft,. which places it some 46 ft. lower than in the discovery well, which topped the Ellenburger at 4,550 ft. Seven-inch casing had been set at 4,597 ft. as the week closed.

Indications of an oil pool for Reeves County were seen as the week closed with Forest Development Corp. No. 1 Scott, Section 286, Block 13, H.&G.N. Survey, wildcat test in the southeastern part of the county, reported showing free oil. The test took three cores between 4,808 and 4,855 ft., all three showing oil, and the last one, at 4,840-55 ft., revealing free oil. The operator was last reported underreaming 5½-in. hole to 4,800 ft. to cement the oil string.

A ½-mile southeast outpost to the Waddell pool in northern Crane County has been staked by Magnolia Petroleum Co. as No. 12 Edwards, northwestern part of Section 12, Block 23-B, P.S.L. Survey. The location is slightly north of a producer completed several months ago to extend production about a mile to the southeast.

Ector County lost a closely watched wildcat test as Jack D. Bodkins, of Midland, prepared to abandon No. 1 H. S. Foster, Section 12, Block 43, T.&P. Survey, 3½ miles south of the South Addis pool. The wildcat is shut down at contract depth of 4,500 ft., with no shows reported.

Crockett County reported a failure in Pittman's No. 1 Humble-Corbett, Section 15, Block 2-B, G.C.&S.F. Survey, east of the Crockett pool in the northwestern part of the county. It was abandoned at a total depth of 2,502 ft. in anhydrite and red rock, after failing to encounter the shallow pay of the Crockett pool.

WEST TEXAS FIELD COMPLETIONS

(24-hour gages)

Andrews County

In the Emma pool, Superior Oil Co.'s No. 1 University, 4,185-4,310 ft., 25 bbl.; old well drilled deeper.

Concho County

L. G. Byerley's No. 1 Noyes, wildcat, dry and abandoned at 1,640 ft.

Crockett County

J. S. Pittman's No. 1 Corbett-Humble, a wildcat, dry and abandoned at 2,502 ft.

Glasscock County

J. R. Petty's No. 1 Joe Blake, a wildcat, dry and abandoned at 1,681 ft.

Pecos County

In the Taylor-Link area, N. G. Eastham's No. 4 University, location abandoned. Lee Petroleum Co.'s No. 22 University, 1,661-90 ft., 112 bbl. Letwin, Lippett & Kallinson's No. 4-D University, 1,585-1,724 ft., 91 bbl. In the Tobarg area, Marvin-Henderson's No. 10 Tippett-Stanolind, 402-420 ft., 23 bbl. Marvin-Henderson's No. 12 Tippett-Stanolind, 432-457 ft., 12 bbl. C. P. Yadon's No. 1 Jackson, 1,640-54 ft., 12 bbl.

Schleicher County

Lone Star Gas Co.'s No. 1 Page-Shell, 5,490-5,540 ft., 7,312,000 cu. ft. of gas.

Tom Green County

A wildcat, Dave Elder's No. 1 DeLong, dry and abandoned at 555 ft.

Upton County

In the McCamey pool, Basin Oil Co.'s No. 10-B Baker, 2,186-2,234 ft., 407 bbl.

Ward County

Texoil Producing Co., Inc.'s No. 2 Allen, 2,050-90 ft., 102 bbl.

Winkler County

In the Hendricks pool, Stanolind Oil & Gas Co. and Westbrook's No. T-89-F-3 Hendricks, 2,825-2,990 ft., 163 bbl.

Yoakum County

In the Wasson-Denver-Bennett pool, Aloco Oil Co.'s No. 3-A Miller, abandoned location.

PANHANDLE COMPLETIONS

Carson County

Cities Service Oil Co.'s No. 32-A S. B. Burnett estate, 2,305-2,446 ft., 35,574,000 cu. ft. of gas. Skelly Oil Co.'s No. 97 Schafer ranch, 3,120-62 ft., 375 bbl.

Gray County

Hagy, Harrington & Marsh's No. 1 C. E. Evans, 2,530-98 ft., 7,700,000 cu. ft. of gas.

Hutchinson County

Power Petroleum Co.'s No. 4 W. B. Haile, 3,037-3,101 ft., 371 bbl. Panhandle Eastern Pipe Line Co.'s No. 1-24 J. T. Sneed, 2,455-2,845 ft., 17,039,000 cu. ft. of gas.

WEST CENTRAL TEXAS

FORT WORTH, Tex., Sept. 4.—New locations made in Shackelford County and Jones County, and new locations in Jack and Brown counties, headed a rather uneventful week in the West Central Texas district.

Most important wildcat test staked was Owens-Snebold Oil Corp.'s No. 1 E. P. Olsen, SW¼ Section 163, B.B.B.&C. Survey, 1 mile southwest of the Ivy pool. Rotary rig is being moved in. The owner seek's production from the prolific Palo Pinto lime of the Ivy pool and the Avoco pool, the location being almost midway between the two areas named. As a southeast outpost to the Ivy pool, J. L. Hart was moving in spudder for No. 1 O. E. Beck, Section 159, B.B.B.&C. Survey. The western part of Shackelford County received a new wildcat location when Fain-McGaha Oil Corp. staked No. 1 Dawson-Conway, SE cor. of the P. G. Holcomb Survey, Abstract 1424. The company will seek production from the Bluff Creek zone at about 1,200 ft., but should this horizon prove barren, the test may be carried to the deeper Palo Pinto lime.

Drilling started as the week closed on Jones County's newest wildcat, Healey & Walters' No. 1 Warren, D. P. Rowland Survey, eastern part of the county. Production will be sought from around 3,200 ft. Deepest well drilling in Jones County is A. H. Tarver's No. 1 A. S. Barkley, wildcat, in Section 54, D.&D.A. Survey, southwest of the Griffin pool. It was last reported fishing for lost tools at a total depth of 5,118 ft. Original contract depth was the Palo Pinto lime, but the lime was missing and the hole was carried deeper. If lost tools are recovered the operator indicates he will drill to 6,000 ft.

Wildcat production in Brown County will be sought by two wildcats staked during the week, both being projected to the Fry sand at about 1,400 ft. Near the Brown-Coleman county line and 1½ miles northwest of the old Smith-Ellis pool, J. D. Kynaston and R. O. Cullison located No. 1 L. A. Hill, southwest part of Section 35, H.T.&B. Survey. The second wildcat is Ed Banner's No. 1 Powell, 3,000 ft. southwest of the four-well Fry-sand pool, discovered this summer by J. O. Hart & Sons. Both tests will start immediately.

Production possibilities in a Nolan County wildcat were again seen as the week closed. Green & Owens and Metcalf & Hallinan's No. 1 S. C. Tipton, Section 43, Block 19, T.&P. Survey, which indicated production several times last year, was reported to have found a show of oil and gas in the Palo Pinto lime.

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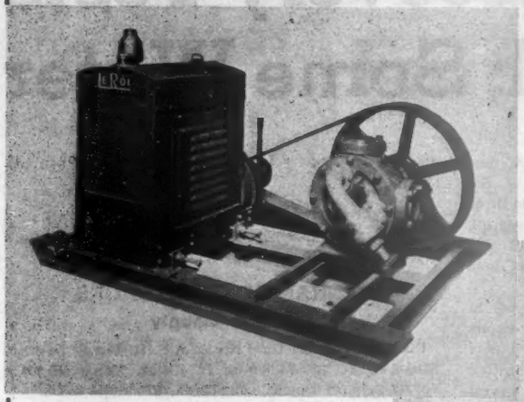

Fig. 1 — V-belt gasoline driven Viking oil field pumping unit. Structural steel welded base makes it easily portable.

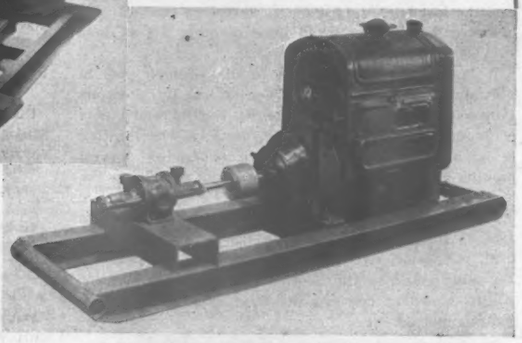

Fig. 3—Viking idler drive pipe line pump with clutch equipped gasoline engine.

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Located 3 miles southwest of Trent, the deep wildcat, drilling in a new hole after the first hole had been junked because casing and tools were lost, had penetrated black shale, which usually overlies the Palo Pinto lime. A change in formation was noted at 4,775 ft. Operators rigged up cable tools and drilled to 4,777 ft., where shows of oil and gas were found. At last report the well was being bailed down, preparatory to testing.

In Eastland County Lone Star Gas Co. has announced location for No. 1 F. J. Kimmell, Section 87, Block 4, H.&T.C. Survey, a wildcat projected to the Ellenburger at about 4,000 ft. It is 8 miles north of Cisco.

WEST CENTRAL TEXAS COMPLETIONS

Brown County

Murray and others' No. 1 Cross, dry and abandoned at 1,110 ft.

Callahan County

Roberts and others' No. 1 Grandy, dry and abandoned at 567 ft.

Jones County

Kittert Oil Co. and others' No. 1 King, dry and abandoned at 1,937 ft.

Palo Pinto County

Adkisson and others' No. 4 Costello, 2,340-47 ft., 35 bbl. oil, 15 bbl. water; old well drilled deeper. Palo Pinto Oil & Gas Co.'s No. 1 Wilbar, dry and abandoned at 3,331 ft.

Shackelford County

Baker & Daniels' No. 11 Davis, dry and abandoned at 1,804 ft. L. H. Hooker's No. 1-B Walker, dry and abandoned at 597 ft. Whittekin and others' No. 2 Humber, dry and abandoned at 500 ft.

Western Kentucky Fields

(Continued from Page 75)

Calvert and others' No. 1 Anna Cooper, drilling at 75 ft. Cabot district: J. C. Ellis and others' No. 1 Luther Daugherty, dry and abandoned at 256 ft. Glen Dean district: Jack Cooper's No. 6 Earl Moorman, dry and abandoned at 625 ft.; No. 7, a location.

Daviess County, Utica district: Farmer & Chenault's No. 1 J. E. Brown, Jackson-sand well, old total depth 1,384 ft., to drill deeper to the Barlow sand; H. E. Morgan and others' No. 1 C. H. Burks, rig on location; Stewart, Snyder and Major Oil Co.'s No. 2 Roy Hansford, location; Master Oil Co.'s No. 1 W. D. Inglehart, 50 bbl. per day from Barlow and Bethel sands; total depth 1,487 ft.; C. E. Daugherty and others' No. 5 J. A. Leet, 175 bbl. a day from Jett and Jones sands; total depth 1,225 ft.; Creek Drilling Co.'s No. 5 Gus Morgan, 50 bbl. a day from Jones sand, total depth 1,328 ft.; Farmer & Chenault's No. 4 F. B. Nation, 75 bbl. per day from Jett, Jones, and Barlow sands, total depth 1,358 ft.; Baldwin Oil Co.'s No. 2 A. A. Westerfield, 90 bbl. a day from Jett sand, total depth 1,187 ft.; Stewart, Snyder and Major Oil Co.'s No. 1 Dr. A. A. Westerfield, drilled deeper from stray sand at 1,030 ft., through Jett sand, total depth 1,172 ft., 60 bbls. a day from Jett sand. Handyville district: A. Teller, trustee's, No. 1 D. E. Connor, spudding in. Red Hill district: Fred Hupp and others' No. 7 Homer Cossler, 5 bbl. a day from stray sand, total depth 830 ft.

Hancock County, Maceo district: Jack Cox and others' No. 1 Dr. M. L. Smith, drilling at 80 ft.

Henderson County, Spottsville district: Magnolia Petroleum Co.'s No. 3 Sam Greene, 75 bbl. a day from McClosky lime, total depth 2,246 ft.

Hopkins County, Hanson district: Phillips Petroleum Co.'s No. 1 Ben Parker, dry and abandoned at 4,921 ft.

Logan County, 5 miles south of Russellville: A. A. Peard's No. 1 C. M. Darden, location.

McLean County, South Livermore district: J. C. Ellis' No. 2 Mrs. Lula Edmonds, spudding in; W. E. Hupp and others' No. 1 Huckleberry (Livermore Timber Co.), cored 6 ft. of McClosky saturation, total depth 1,674½ ft.; looks like a good well. Livermore City lot: Baldwin Oil Co.'s No. 1 Thomasson, drilling deeper from Barlow sand to McClosky lime.

Ohio County, Taffy district: J. C. Ellis and others' No. 11 Feemster & Wimsatt, 15 bbl. a day from Jett sand, total depth 532 ft. Adaburg district: Henry Scholl and others' No. 6 J. T. Hickey, drilling at 200 ft. Heflin district: Thomas A. Galey and M. Callas' No. 3 Mrs.

R. A. Nanz, dry hole, total depth 630 ft. Sunnydale district: J. W. Ray and others' No. 1 George Russell, spudding in.

EASTERN KENTUCKY

ASHLAND, Ky., Sept. 4.—A month-end report of gas completions helped swell the number of wells reported finished in the past week in eastern Kentucky. Twelve gas wells, one oil well and one dry hole were included in the report, as follows:

Inland Gas Corp. completed No. 209, Joseph Pigman land, on Troublesome Creek in Knott County, with a gas production of 213,000 cu. ft. from shale, and 350,000 cu. ft. from a lime pay.

Warfield Natural Cas Co.'s No. 4842, K. P. Pack land, on Lick Branch in Marion County, total depth 2,862 ft., has a gas production of 421,000 cu. ft. daily.

Virginian Gas, Oil & Coal Co.'s No. V-1270, N. J. Cassidy No. 3 land, on Little Crooked, started at 20 bbl. of oil per day from sand; total depth 1,262 ft.

Columbian Fuel Co.'s No. GW-815, Jack Smith and others land, on the Right Fork of Dicks Creek in Pike County, after acidizing started at 671,000 cu. ft. of gas per day.

United Carbon Co. had a flow of 235,000 cu. ft. of gas from shale and 450,000 cu. ft. of gas from Big lime in No. 790, Republic Steel Corp. land No. 2, on Greasy Creek in Pike County, after acidizing at a total depth of 4,082 ft.

Hamilton Gas Co.'s No. D-82, James Hatcher land, on Ivy Creek in Floyd County, total depth 2,915 ft., had an initial production of 103,000 cu. ft. of gas. The same firm's No. D-81, on the same farm, total depth 2,970 ft., started at 206,000 cu. ft. of gas per day.

Charles Coleman has a dry hole at 800 ft. in No. 1 William Carnes, on Stinking Creek in Knox County.

Harris Oil & Gas Co.'s No. 1 George Honaker, on Camp Branch, Floyd County, total depth 2,605 ft. in shale, is a 60,000 cu. ft. gas well.

McIntosh and others' No. 1 May Layne, on Toms Creek, Floyd County, is a 50,000 cu. ft. gas well at a total depth of 2,595 ft., in shale. This was a deepening operation.

Keathley Allen & Hal's No. 1 Thomas Jervis, on Home Branch, Floyd County, produced 500,000 cu. ft. of gas daily from Big lime. The well was then acidized and showed an increase.

E. C. Ware, trustee's No. 1 Alonzo Napier, right fork of Troublesome Creek, Knott County, total depth 1,878 ft., produced 492,000 cu. ft. of gas per day.

Southeast Gas Co.'s No. 1 George Maynard, on Tug Fork, Martin County, total depth 2,705 ft., produced 84,000 cu. ft. of gas from Big lime and 35,000 cu. ft. from shale in 24 hours.

Huntington Oil and Deitrich's No. 1 Henry Davis, on Wolf Branch, Martin County, total depth 1,325 ft., produced 400,000 cu. ft. of gas from Big lime.

OHIO FIELDS

NEWARK, Ohio, Sept. 4.—Ohio fields covered by this report completed 17 tests during the past week, 10 gas wells, 4 oil wells, and 3 dry holes. Knox County yields a fair gasser, gaging better than 4,000,000 cu. ft. open flow. The sub-Trenton test in Wyandot County is dry.

In Athens County, Canaan Township, C. W. Nuzum's No. 1 G. E. Crawford, Section 8, gaged 317,000 cu. ft. of gas, open flow, from second Cow Run sand at 570-78 ft. Lodi Township McBell Oil Co. No. 1 William Hampton, Section 19, made 160,000 cu. ft. open flow from Stray sand at 874-89 ft.

In Cuyahoga County two Newburg-sand gas wells were completed in the Mayfield Village pool. Benedum & Trees' No. 1 Society for Savings, Lot 25, 380,000 cu. ft. of gas after the acid treatment, now shut in, sand 2,778-2,836 ft. Brendel Producing Co.'s No. 1 Aintree Park, Lot 16, was shot and shut in. It is good for 630,000 cu. ft. per day from sand at 2,804-54 ft.

In Guernsey County, Millwood Township, M. J. Purdy's No. 1 T. E. Henderson, Section 22, is a small gas well in Berea sand at 1,597-1,606 ft.

In Knox County, Butler Township, East Ohio Gas Co.'s No. 1 H. Snyder, Section 7, gaged 4,260,000 cu. ft. from the Clinton sand. The first sand at 2,811-37 ft. was dry, the pay being in the second streak which was topped at 2,843 ft.

In Licking County, Newark Township, Lacknette and others' No. 1 W. L. Bachelor, first quarter, had only 10,000 cu. ft. of gas and small show of oil in broken Clinton sand at 2,573-2,615 ft. and was abandoned.

In Medina County, Litchfield Township, Hart and others' No. 1 J. W. Regan, Lot 44, made 5 bbl. of oil per day after a shot in Berea sand at 532-55 ft. In York Township J. H. Wilt's No. 3 Ed Burnham, Lot 24, Berea sand was dry, total depth 504 ft.; abandoned.

In Morgan County, Center Township, Section 24, William Patten and others' No. 1 W. C. Fisher, Section 24, is a 5-bbl. settled producer from the Berea at 1,644-56 ft.

In Monroe County, Washington Township, Gold Crown Oil & Gas Co.'s No. 4 J. A. Strickling had an initial production of 5 bbl. of oil from first Cow Run sand at 570-86 ft. The second Cow Run showed some gas, total depth 730 ft.

In Noble County, Beaver Township, Barnesville Development Co.'s No. 1 Daisy Roe, Section 25, was completed for a small gas well in Berea sand, total depth 1,578 ft.

In Perry County Preston Oil Co. shot two Clinton sand wells which had been drilled in previously and left standing; No. 1 A. C. Randolph, Clayton Township, Section 17, had an initial production of 39 bbl.; No. 161 Sunday Creek Coal Co., in Coal Township, Section 36, started off with 38 bbl. In Monroe Township Davis & Hazlett's No. 1 John Holden, Section 22, gaged 530,000 cu. ft. of gas when shut in after drilling 29 ft. in the Clinton sand, total depth 3,831 ft.

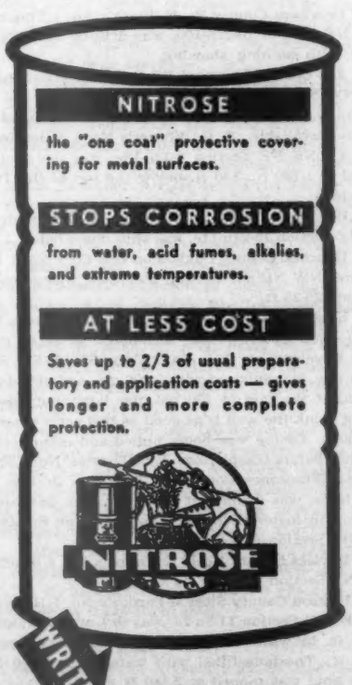
In Washington County, Liberty Township, Koon Run Oil Co.'s No. 4 G. C. Hendershot, Section 22, has a natural open flow of 360,000 cu. ft. of gas from the Keener sand at 1,287-90 ft.

In Morgan County, Meigsville Township, Clyde Foraker and others are drilling at 600 ft. in the Oriskany test on Charles W. Dearth land in Section 22.

Lima Field

In Wyandott County, Marsailles Township, R. D. Perkins and others' No. 1 W. W. Morrel, southwest quarter, Section 13, was abandoned at 1,920 ft. after uncovering water. Trenton was topped at 1,328 ft. and Green sand at 1,907 ft.

In Franklin County, Madison Township, Carl Blacksten and others' No. 1 E. J. Simms, Section 15, passed through the bottom of Big lime at 944 ft., a small showing of gas was had at 1,176-87 ft.; now drilling in the Utica shales at 1,695 ft.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Michigan Field Report

By
O. C. PRESSPRICH

Kent County Led in Results; 22 Drilling Permits Granted

SAGINAW, Mich., Sept. 4.—Although emergency control orders had materially reduced production and there were no indications of an immediate lifting of the restrictions, Michigan oil development continued last week at its usual brisk pace while several more sizable wells were being added to the established fields.

The restrictions, however, did affect preparations for new development, it was indicated in the weekly list of drilling permits from the State Conservation Department. New franchises declined to a total of 22 for the week, which is only about two-thirds or less the usual number each week for every week of the last 6 months.

The completion record for the week showed 22 new oil wells, 3 new gas wells, 6 dry holes, and 1 location abandoned. With three big wells contributing more than half the total, daily potential crude output was increased by approximately 6,900 bbl., two-thirds of it in Kent County's Walker-Wyoming field.

The new permits, with one exception, were wells to be drilled in southern and western Michigan, 9 being in Kent County, 4 in Van Buren, 3 in Allegan, 3 in Ottawa and 1 each in St. Joseph and Oceana.

Following is the Michigan completion summary for the week:

Allegan County

Salem Township (4n-13w)—Location for No. 1 Brooks in SE SW SW Section 1 was abandoned by Arthur F. Shaw. Red-Man Oil Co. completed No. 1 Jacob Heibel, NE SE SE Section 2, at 1,647 ft. total depth, and acidized it, getting an initial production of 100 bbl. Regal Dutch Petroleum Co. No. 4 Smith estate, SE NE NW Section 2, rated 180 bbl. daily after acidizing. Total depth is 1,594 ft. Salem Gas & Oil Co. completed No. 3 Alois Smith, NE NW NW Section 23, at 1,589 ft., total depth. Production after the hole was acid-treated was 200 bbl. a day.

Arenac County

Clayton Township (20n-4e)—Don Rayburn completed a gas well gaging 4,268,000 cu. ft. a day. It is No. 1 McKay, NW SE Section 10. Total depth is 1,171 ft.

Barry County

Irving Township (4n-9w)—K. A. Fox's No. 1 Sharf, SE SE NE Section 18, was dry and abandoned at 2,297 ft.

Thornapple Township (4n-10w)—Freeman Oil Co. abandoned as dry at 2,117 ft. No. 1 H. Schroeder, NE NE NE Section 5.

Berrien County

Niles Township (7s-17w)—John D. Mathews' No. 1 William H. Mathews, NW NW NW Section 5, was abandoned at 666 ft.

Clare County

Freeman Township (18n-6w) — Taggart Brothers, Inc., completed No. 14 Van Horn & Barlow, C E½ Section 3, at 1,502 ft. It is producing 4,050,000 cu. ft. of gas a day.

Gladwin County

Bentley Township (17n-2e)—No. 4 Hoyt M. Smart, SE NE NW Section 29, a Stork Oil Co. development, produced at the rate of 150 bbl. a day after it was acidized. Total depth is 3,527 ft.

Kent County

Walker Township (6n-12w) — Smith Petroleum Co. and associates completed two wells in Section 4. No. 7 William H. Gilbert estate, total depth 1,783 ft., produced 100 bbl. a day after acid treatment. No. 3 Amanda Thomasma, NE SW NE, total depth 1,784 ft., rated 60 bbl. a day after acid. Wolverine Natural Gas Corp. got a big well. Its No. 5 Amanda Thomasma, SW NE SW Section 4, rated 1,680 bbl. after it was acidized. Total depth was 1,794 ft.

Walker Township (7n-12w)—Edward B. Strom's No. 1 Park association, SW SW NW Section 30, completed at a depth of 1,907 ft., rated 480 bbl. a day after it was acidized. W. H. Thurlby, trustee's No. 1 Denton, S½ NW NE Section 31, was acidized at a total depth of 1,872 ft. and produced 128 bbl. a day. Flowing naturally at an estimated 435 bbl. a day was C. A. Welch's No. 1 Guyda Fioravanti, NW SE SE Section 33. Completion depth was 1,762 ft.

Wyoming Township (6n-12w) — Wyoming development came forward with a rush as four new wells, one the best of the week in the state, were completed. Certain-Teed Products Corp. completed No. 1 fee, SW SE NE Section 4, at 1,762 ft., acidizing it to bring initial daily flow to 960 bbl. Flowing naturally 288 bbl. a day, Lamar Oil Co.'s No. 2 Grand Rapids Gravel Co., E½ NW SE Section 4, was completed at a total depth of 1,722 ft. The same company's No. 6 Gravel Co., SW NE SE Section 4, was rated at 1,800 bbl. a day naturally, at a total depth of 1,757 ft. Pyramid Oil Co. estimated the natural flow at 200 bbl. a day from No. 2 Carroll & Stiles, SE NE SE Section 4, at total depth of 1,761 ft.

Gratiot County

New Haven Township (10n-4e)—Lang & Lewis completed a small gas well at 987 ft. It is No. 1 Gee, NE NW NE Section 5, rated at 1,550,000 cu. ft. daily.

Ogemaw County

West Branch Township (22n-2e) — Weber Oil Co. completed two small producers in Section 28. No. 7 W. S. Crawford, SE NE SE, total depth 2,710 ft., was given acid treatment and produced 30 bbl. a day. No. 8 Crawford, SE SE SE, same depth, was acidized for 25 bbl. a day.

Ottawa County

Polkton Township (8n-14w)—Century Oil & Gas Co.'s No. 1 Jacob Bouwkamp, SW SW NE Section 35, was completed as a dry hole at 1,938 ft.

Tallmadge Township (7n-13w)—Breham Oil Co. abandoned No. 1 John Longnecker, SE NE SE Section 4, at 1,998 ft., failing in an extension test for the Tallmadge area.

Van Buren County

Almema Township (2s-13w) — Daily Crude Oil Co. abandoned as dry at 1,226 ft. No. 1 Owen R. Carter, SE NW NW Section 32.

Bangor Township (2s-16w)—Blood & Hendershott's No. 1 William Westcott, NW SW NE Section 28, started at 200 bbl. per day, completed at total depth of 1,018 ft.

Bloomingdale Township (1s-14w) — Mesel & Spielberg's No. 2 W. C. Kahl, SW SW SE Section 6, 1,227 ft. deep, was given acid treatment but initial production was only 25 bbl. a day.

Columbia Township (1s-15w) — Harry W. Leman, trustee's No. 2 Strong, SW SE SE Section 2, may be plugged, as it produced initially only 4 bbl. a day. Depth is 1,166 ft. Forest Ruby's No. 2 Walter Smith, SE SE NE Section 11, rated 30 bbl. a day after an acid treatment at a total depth of 1,178 ft. Completed at 1,202 ft., Clapsaddle & Harris' No. 6 Locker, NE SW SW Section 13, had an estimated daily production of 100 bbl. after the hole was shot with acid. Production after acid treatment was 350 bbl. a day from the O. O. Borden's No. 7 Leo P. Parisian, SW SW NE Section 13, completed at 1,212 ft. Clapsaddle & Harris' No. 8 Locker, NW NE SW Section 13, completed at 1,227 ft., rated 400 bbl. a day after acid treatment.

Indiana Fields

(Continued from Page 75)

In Whitley Township Michigan Oil & Gas Co.'s No. 1 Bailey, NE NE SW Section 3-30-8e, was shut down at 575 ft.

In Jasper County United Development Co.'s No. 1 Woodruff, SW SE SW Section 28-31n-5w, was drilling at 672 ft.

In Adams County Haugh's No. 1 Haugh, SE NE NW Section 24-26n-14e, was shut down below 900 ft. but it had a showing in Trenton lime which will be tested.

In Huntington County Claude Drilling Co.'s No. 1 Young, C SE SW Section 21-26n-9e, was dry and abandoned at 1,042 ft. R. L. Myers was drilling below 450 ft. in No. 1 Cramer, C E½ SW NW Section 29-26n-9e. Edgar Hays' No. 1 Cobb, SE SW NW Section 18-26n-10e, was completed in Trenton lime at 989-1,000 ft., total depth. It produced 4½ bbl. in 24 hours.

In Madison County, Anderson's No. 1 Coy, NE NE SW Section 1-19n-6e, was shut down at below 1,400 ft., with the hole full of water.

In Tipton County F. W. Eastman's No. 1 Vandeventer, SE SW NE Section 21-21n-3e, was drilling below 200 ft.

In Delaware County W. E. Black's No. 1 Thomas, SW NW NE Section 10-22n-10e, was drilling at 1,226 ft., in lime, with nothing showing.

In Jay County Larapaul Oil Co.'s No. 1 Landner, SW NE NW Section 25-22n-12e, which showed 11 bbl. a day naturally, will be shot with 60 qt., but the sand depth was not available. F. C. Weaver's No. 1 Valentine, NW cor, NE NE NE Section 8-23n-13e, was dry and abandoned at 1,140 ft., 140 ft. below the top of the Trenton limestone.

In Blackford County A. M. Jones' No. 1 Simonton, SW SE NE Section 15-24n-11e, was shut down below 1,080 ft.

In Hancock County Oaklandon Gas Co.'s No. 1 Evans, NE cor. NW NE SW Section 26-17n-5e, was a small gas well at 920-25 ft.

In Knox County Kidd and others' No. 1 Bobe, SE SE NE Section 20-2n-9w, was abandoned at 1,785 ft. Mid West Development Co.'s No. 1 Frey, SE SE SW Section 11-2n-11w, was acidized with 3,000 gal. and swabbed and flowed at the rate of 150 bbl. per hour, but observers do not think the well is as good as this early production indicates. Casing was being pulled and other tests will be made before completing. A. C. Thomas' No. 1 Schwab, Lot 44, Vincennes Commons, Township 2n-11w, a 10-acre lease, was drilling at 450 ft. LeRoy Garrison was moving in material to start No. 1 George Schuman, C SE NW Section 9-5n-8w.

In Daviess County Neely & Young's No. 1 Stuffle, NE NW NE Section 29-4n-5w, is a machine.

In Jackson County Siosi & Pardoe's No. 1 Hutchinson, SE SE NW Section 11-5n-2e, was dry and abandoned at 2,475 ft. in white sand. Trenton lime was topped at 1,754 ft. The hole filled with water at 2,380-90 ft. St. Peter sand was topped at 2,440 ft.

In Sullivan County Salem Oil Co. was shut down at 1,130 ft. in No. 1 Woodard, NW NW NW Section 7-8n-9w. Location has been made for Siosi's No. 1 in NE NE SE Section 18-8n-10w.

In Vigo County Siosi's No. 1 Hilbrandt, C N½ NW NW Section 15-10-10w, was drilling at 300 ft. Vanderbank & Whitaker's No. 1 Troutman, SE SW NW NW Section 16-10n-10w, was drilling at 1,900 ft.

Rocky Mountain Area

By
T. R. INGRAM

Extend Wilson Creek Field 1 Mile From Discovery Well

DENVER, Colo., Sept. 4.—An important extension of the Wilson Creek field in Colorado is imminent in Texas Co. and California Co.'s test, which is showing for a producer in the Morrison in the second well drilled to that horizon.

Lance Creek in Wyoming had only one completion, Continental Oil Co.'s No. 2-B Schuricht, which made 1,672 bbl. initially from the Leo sand. Sinclair-Wyoming Oil Co.'s No. 85-A, in Lost Soldier, was completed for 100 bbl. natural flow.

Montana had three completions in the Cut Bank field, and three, of which one was a dry hole, in Kevin-Sunburst.

SOUTHEAST NEW MEXICO

The oil production holiday, which terminated last Friday, failed to hamper drilling activity in the Southeast New Mexico area, four tests being started the past week in the Loco Hills pool of Eddy County, the most active area in the district.

H. W. Martin staked location for No. 2 Gates, 660 ft. from the south and 990 ft. from the west line of Section 15-18s-30e. Cellar and pits have been completed and spudder is being moved to Me-Tex Supply Co.'s No. 1-16 State, 660 ft. from the north and 330 ft. from the west line of Section 16-18s-31e, east of the Loco Hills pool proper. G. A. Grober has dug cellar and pits for No. 1 Wright, C SE NW Section 25-18s-28e. Franklin Petroleum Corp.'s No. 3-A Yates was staked 330 ft. from the north and 2,310 ft. from the east line of Section 6-18s-30e.

Possibility of a new shallow oil field was seen at McAuliffe's No. 1 Coates, southeast of Hope and in the SE NE Section 3-18s-23e. Showings of oil and gas were reported at 922 ft., however, the operator plans to bail out and drill deeper.

Severe setback was suffered at B. H. Nolen's No. 1 Iles, Eddy County wildcat in the SE cor. Section 17-16s-29e. Tools were lost at a total depth of 1,723 ft. and hole was junked at that depth. Operator skidded rig 15 ft. west and is drilling in new hole below 291 ft. Another wildcat test, Fred Turner, Jr.'s No. 1 Cave-Nickson, C NE NE Section 30-18s-26e, is drilling lime past 1,717 ft. Original contract depth was 1,500 ft. The well had tested 1,271,000 cu. ft. of sulfur gas per day while bottomed at 1,348 ft.

Quarter-mile west extension to the Lovington pool in Lea County, L. H. Wentz's No. 1-A State, will be completed without a shot. It built up a casing pressure from 675 lb. to 850 lb. after being shut in for 24 hours. On last gage the well flowed 113 bbl. of oil daily through 12/64-in. tubing choke from broken pay at 4,665 ft. to 4,980 ft.

A southeast outpost to the Lovington pool, Coastal Development Co.'s No. 1 Caylor, swabbed only 24½ bbl. of fluid in 5 hours, 50 per cent being water. Hole is bottomed at 4,785 ft., plugged back from total depth of 5,005 ft. in lime to shut off sulfur water. It has been acidized with 1,000 gal. Also in the Lovington pool, Amerada Petroleum Corp.'s No. 3-L.A. State, logged showings of air at 3,265 ft., drilled soft lime from 3,702 ft. to 3,712 ft., and was last reported drilling ahead below 4,235 ft. in lime.

Eddy County

Carper Drlg. Co.'s No. 4 Robinson, SE SE SW Sec. 25-16-31. Drlg. 3,823 ft.
G. R. Burke's No. 1 State, NE NE NW Sec. 36-16-24. Drlg. 1,220 ft.
B. H. Nolem's No. 1 Iles, SE SE SE Sec. 17-16-29. Skidded 15 ft. west, spd. new hole, W.O.C. 291 ft.
Allen, Fair & Pope's No. 4-A State, SE SW NW Sec. 36-17-29. T.D. 3,252 ft.; pay 3,200-11 ft.; C.O. 3,252 ft.; est. 100 B.O.P.D.
Artesia Drlg. Co.'s No. 1 Hoffman, SE SE SE Sec. 14-17-24. Drlg. 393 ft.
J. R. Cones et al's No. 1 Saunders, SE SE NW Sec. 13-17-27. Rng. csg. 458 ft.
Danciger O. & R.'s No. 5-A Turner, C N½ NW NW Sec. 19-17-31. Drlg. 3,017 ft.
R. W. Fair's No. 1-B State, SE NW SW Sec. 36-17-29. Drlg. 2,947 ft.
Grayburg Oil Co.'s No. 1 State, NE SW SW Sec. 36-17-29. Drlg. 1,805 ft.
J. E. Hughes No. 3 Brooks, NE NW NW Sec. 19-17-28. S.D.O. 2,000 ft.
Plains Prod.'s No. 1 Daugherty, SE SE SE Sec. 11-17-27. T.D. 428 ft.; S.D.O.
Red Lake Oil Co.'s No. 1 Reid, SE SW NE Sec. 20-17-28. T.D. 1,935 ft.; comp., 185 B.O.P.D.
Repollo Oil Co.'s No. 6-A Parke, NW SW NW Sec. 22-17-30. Comp., 14 B.O. in 4 hrs.; T.D. 3,442 ft.
Republic Prod.'s No. 3-B Robison, SE SE SE Sec. 35-17-29. Gas sd. 2,610 ft.; fsg. 3,034 ft.
J. H. Steinberger's No. 3 Hastie, NW SW SW Sec. 18-17-28. S.D. 566 ft.
R. R. Woolley's No. 1-B Woolley, SW SW SE Sec. 31-17-30. T.D. 2,832 ft.; S.O. at 2,825-30 ft.; prep. run tbg.; flwd. 367 B.O.P.D.
Brainard & Guy's No. 1 Guy, NW SW NW Sec. 10-18-29. Drlg. 2,475 ft.
Plains Prod. Co.'s No. 1 Massie, C SW SW Sec. 27-18-29. S.D.R. 1,588 ft.
Barney Cockburn's No. 1 Graham-State, C NE NE Sec. 16-18-31. Drk.
G. M. Cone's No. 1 Langford, C NW SW Sec. 9-18-29. Drlg. 2,363 ft.
Continental et al's No. 1 Travis, SE SE SE Sec. 3-18-29. P.B. 2,670 ft.; swbg. 80 B.O.P.D., 420 bbl. wtr. P.D.
L. E. Elliott No. 1 Elliott, SE SE SE Sec. 24-18-29. Drlg. 3,120 ft.
Franklin Pet. Corp.'s No. 1 Masteller, NW NW NE Sec. 7-18-30. Loc.
Farmer & Tallmadge's No. 1 Hubbell, NE SW Sec. 4-18-25. S.D. repairs 1,050 ft.
Franklin Pet. Corp.'s No. 1 Cappedge, NW SW NW Sec. 5-18-30. Tstg. 5½-in. water shutoff at 3,092 ft., T.D.
E. S. McAuliffe's No. 1 Coates, C SE NE Sec. 3-18-23. S.D.R. 917 ft.
Me-Tex et al's No. 1-B Ballard, C NW NW Sec. 8-18-29. Drlg. 2,836 ft.
Saunders Bros.' No. 1 Travis, Sec. 17-18-29. Drlg. 2,560 ft.
Saunders Bros.' No. 1 Murdock, NW NW SW Sec. 4-18-29. T.D. 2,625 ft.; shot and C.O.; 25 B.O.P.D.
Fred Turner's No. 1 Nickson, C NE NE Sec. 30-18-26. S.D. 1,760 ft.
Underwood & Sanders' No. 2 Miller, SW NW NW Sec. 4-18-29. Drlg. by tools 2,405 ft.
Underwood & Sanders' No. 3 Miller, SE SW NW Sec. 4-18-29. S.D.O. 3,295 ft.
J. W. Elliott's No. 1 Cannon (O.W.D.D.), C SW SE Sec. 4-19-30. S.D. 2,355 ft.
Trojan Oil Co.'s No. 1 Grant, SW SW NE Sec. 33-20s-25e. S.O. 1,530 ft.

Chaves County

R. M. Baker's No. 1 Baker, NW NW NW Sec. 19-10-30. R.U.&S.D.
Caudill & French's No. 1-A Smith (O.W.D.D.), Sec. 1-4-29. Drlg. by csg. 3,686 ft.
Comanche Drlg.'s No. 1 Campbell, NE NE NW Sec. 15-11-26. P.B. 1,274 ft.; est. 2 B.O.P.D.; S.D.O. 1,343 ft., T.D.
E. J. Fisher's No. 1 Hill, CSL S½ Sec. 8-15-25. Drlg. 80 ft.
Nay Hightower's No. 1 Billingslea, C SW NE Sec. 28-11-30. T.D. 3,445 ft.; P.B. 3,430 ft.; shot and C.O.; 100 ft. O.I.H.
Tarkenton Bros.' No. 1 Peters, SE SE NW Sec. 33-11-25. S.D.O. 1,159 ft.
Western Minerals, Inc.'s No. 1 Dow, C SW NW Sec. 27-10-30. Drlg. 3,939 ft.; S.O. 3,920-25 ft.

Dona Ana County

Picacho O. & G. Co.'s No. 1 Armstrong, Sec. 15-23s-1w. S.D. repairs 2,410 ft., T.D.
Slack & Mahres' No. 1 Simmons, Sec. 35-22s-5e. S.D. repairs 2,785 ft., T.D.

Luna County

O. D. Berry's No. 1 Berry, SE SE SW Sec. 33-22s-10w. S.D.O. 1,000 ft.

Lea County

L. H. Wentz's No. 1-A State, C SW SW Sec. 36-16-36. S.I. 4,980 ft.; 113 B.O.P.D.
Coastal Development's No. 1 Caylor, NW NW SE Sec. 6-17-37. Tstg. 50 B.O. in 4 hrs.; T.D. 5,005 ft.
Paul Love's No. 3 Pearsall, C NW NW Sec. 33-17-32. Prep. to shoot at 3,938 ft.; P.B. 3,938 ft.; flwd. 50 B.O.P.D.
Magnolia Pet. Co.'s No. 37 State-Bridges, C NE SW Sec. 14-17-34. C.O. after shot, 4,295-4,670 ft.; T.D. 4,700 ft.
Maljamar O. & G. Co.'s No. 2 Mitchell, SW SE SW Sec. 5-17-32. T.D. 4,498 ft.; P.B. 3,862 ft.; S.I.; P.B. depth 4,003 ft.
Ohio Oil Co.'s No. 1 State-Staplin, C SE NW Sec. 19-17-35. Drlg. 4,640 ft.
Continental Oil Co.'s No. 8 Britt B-15, C W½ NW SE Sec. 15-20-37. S.D.O. 3,775 ft.
Wilson Oil Co.'s No. 1 Shell-State, C NE SW Sec. 7-21-35. W.O.C. 2,845-50 ft.; T.D. 2,850 ft. (no report).
J. C. Clower's No. 3 Christmas, SE SE NE Sec. 28-22-37. Drlg. 2,780 ft.
Peters & Elder's No. 3 Brunson, SW SW SW Sec. 3-22-37. Fsg. bit 3,450 ft.
Lem Peters' No. 3 T. O. May, SW SW NE Sec. 34-22-37. S.I. 3,655 ft.
Gulf Oil Corp.'s No. 2 Carr, C SW NW Sec. 10-24-37. Comp. 60 B.O.P.D.; T.D. 3,600 ft.
Skelly Oil Co.'s No. 1 Sherrell, C SW SW Sec. 31-24-37. C.&P.
Anderson-Prichard Oil Corp.'s No. 9 Wells, C SW NE Sec. 6-25-37. S.I. 3,540 ft.
Continental Oil Co.'s No. 1 State A-2, C SW SE Sec. 2-25-37. S.D.O. 3,300 ft.
Hershback Drlg. Co.'s No. 1 Woolworth, NE NE SW Sec. 8-25-37. C.&P.

COMPLETIONS

Eddy County

F. G. Keyes' No. 3 State, Section 9-17s-28e, completed for 3,040,000 ft. of gas from 1,672 ft. to 1,705 ft. Red Lake Oil Co. No. 1 Reid, Section 20-17s-28e, completed for 185 bbl. of oil daily from 1,904-35 ft. Repollo Oil Co.'s No. 6-A Pache, Section 22-17s-30e, completed for 14 bbl. of oil in 4 hours from 3,365 ft. to 3,442 ft.

Lea County

Drilling & Exploration Co.'s No. 2-W State, Section 26-17s-35e, completed for 43 bbl. of oil per hour from pay from 4,480 ft. to 4,588 ft. Gulf Oil Corp.'s No. 2 Carr, Section 16-24s-37e, completed for 60 bbl. of oil daily from 3,487 ft. to 3,600 ft. Humble Oil & Refining Co. No. 5 Williams, Section 34-24s-37e, completed for 540 bbl. daily from 3,275 ft. to 3,520 ft. Skelly Oil Co. No. 2-P State, Section 33-17s-35e, completed for 215 bbl. of oil in 5 hours from 4,350 ft. to 4,648 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc.'s No. 2 Pajarita, Sec. 32-9n-1e. Drlg. below 1,750 ft.

San Juan County

Continental Oil Co.'s No. 12 Table Mesa, NE NE SW Sec. 3-27n-17w. Cmtd. 7-in. at 598 ft.
Continental Oil Co.'s No. 95 Rattlesnake, 1,980 ft. from E, 1,320 ft. from S lines, Sec. 2-29-19w. Pmpd. 15 B.O.P.D. at 815-43 ft.
Continental Oil Co.'s No. 100 Rattlesnake, NE NW NE Sec. 2-29n-19w. T.D. 1,124 ft.; cmtd. 13-in. at 1,067 ft. with 575 sacks.
Angel Peak Oil Co.'s No. 8 Govt., C NE SW Sec. 13-28n-11w. T.D. 1,420 ft.; W.O. rig; old rig destroyed by fire; 1,000,000 cu. ft. gas.
Al Greer's No. 2 Thompson, SW SE SW Sec. 10-30n-11w. S.D. 1,125 ft. for 6⅝-in. for W.S.O.
Wells & Noland's No. 1 Govt., C NE NE Sec. 21-29n-11w. Drlg. 125 ft.
Geo. Goodwin's No. 1, NE NW NW Sec. 16-30n-11w. Drlg. sh. 1,350 ft.; H.F.W.

San Miguel County

Ben E. Keith's No. 1 McCune, SW SE SW Sec. 32-16n-12e. S.D. 400 ft.; repairs.
Southwest Drlg. Co.'s No. 1 Conchas, NW NE Sec. 34-17n-21e. Drlg. 2,150 ft.

Socorro County

Joiner Oil Corp.'s No. 1 Belen Grant, SE NW Sec. 16-3n-1e. S.D. 2,965 ft.

Torrance County

Drice Co.'s No. 1 Garland, NE SE Sec. 32-7n-7e. S.D. 1,996 ft. for parts.

Valencia County

C. A. Grober et al's No. 1 Fuqua, NE NE Sec. 19-5n-3e. Drlg. below 3,000 ft.
Joiner Oil Corp.'s No. 1 San Clement, C NE SE Sec. 23-7n-7e. T.D. 5,606 ft.; may skid rig.

COLORADO

Archuleta County

Boone Dev. Co.'s No. 1 Newton, SE NW SE Sec. 18-33n-1e. T.D. 1,120 ft.; 10-in. stk.; rng. 8¼-in.

Adams County

Derby Dome O. & G. Co.'s No. 2 Baxter, C SE SW Sec. 2-3s-66w. S.D. 62 ft.

Boulder County

Continental Oil Co.'s No. 1 Borra, SE NE SW Sec. 5-1s-69w. R.U.R.
J. A. Warren's No. 3 Maxwell, NW NE NW Sec. 24-1n-17w. Drlg. sh.&qtz. 944 ft.
Reynolds & Rorr's No. 1 Thomas, SW SW Sec. 17-1n-70w. S.D.O. 2,138 ft.; will D.D.

Custer County

Henry Donnelly's No. 1 Hughes, SE NE Sec. 26-21s-69w. Drlg. 765 ft.

Fremont County

T. E. Maloney's No. 1, SE NW Sec. 34-19s-69w. Drlg. 1,472 ft.
Waterville Oil Co.'s No. 2 Persons, CWL NE NE Sec. 17-19s-69w. Drlg. 175 ft.

Huerfano County

J. W. Tomkins & Sons' No. 2 George, SE SE SE Sec. 3-29s-69w. Drlg. 1,170 ft.
S. W. Pressey's No. 3 Campbell, NW NW NW Sec. 11-29s-69w. Drlg. 470 ft.
E. J. Dunigan's No. 1 Campbell, SW NW Sec. 3-29s-69w. Drlg. 730 ft.
Ira E. Miller's No. 1 Hamilton, SE SE NW Sec. 20-29s-67w. Drlg. 1,187 ft.

Jackson County

W. N. W. Corp.'s No. 1 North Park Coal Co., NW NW Sec. 18-9n-78w. T.D. 4,100 ft.; U.R. 8¼-in.

La Plata County

Nick Splatter's No. 1-X Bryce, C SW SW Sec. 32-33n-9w. T.D. 2,352 ft.; cmtd. 8¼-in. at 2,240 ft. and 6⅝-in. at 2,352 ft. to save 1,500,000 cu. ft. of gas below 8¼-in.

Larimer County

Continental Oil Co.'s No. 1 Meyer, SW SE SW Sec. 19-8n-68w. T.D. 4,496 ft.; cmtd. off Muddy sd. at bttm.; W.O.C.

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(Green Label) the popular favorite for wells to 800 feet in depth.

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Las Animas County

J. H. Hulme et al's No. 1 Azar, SE SE NW Sec. 27-34s-58w. Drlg. 1,712 ft.

Moffat County

Iron Springs Pet. Co.'s No. 1 Beckett, SE SE SE Sec. 9-9n-93w. M.I.M.
Stanolind O. & G. Co.'s No. 34-SD Parkinson, SW SE SW Sec. 22-4n-92w. T.D. 3,381 ft.; P.B. to 3,339 ft.; W.O.C.
Cooperative O. & G. Co.'s No. 1 Gossard, CWL E½ E½ Sec. 29-5n-93w. Spd. and S.D. to comp. R.U.
Steamboat Springs Synd.'s No. 1 Sutton, NE NE SW Sec. 1-5n-96w. T.D. 1,690 ft.; U.R. 6⅝-in. to S.O.W. in Morrison sd. at 1,672-86 ft.
J. S. Warner's No. 1 Baker, NE NE SW Sec. 35-5n-96w. S.D. 300 ft.

Montezuma County

McElmo Oil Co.'s No. 1 West, NE NW NE Sec. 31-36n-17w. Drlg. 5,030 ft.

Park County

South Park Oil Co.'s No. 1 Lemar, NE NE SE Sec. 34-11s-75w. Drlg. 6,986 ft.

Pueblo County

Eden O. & G. Co.'s No. 1 Horse Creek Ld. & Cattle, SW SE Sec. 29-19s-64w. S.D. 2,185 ft.

Rio Blanco County

Texas Co.'s No. 2 Unit, an important test on the Wilson Creek structure, being drilled jointly with the California Co., is a near completion. It had the top of the Morrison at 6,535 ft. and the base at 6,697 ft. Cores showed saturation and a drill-stem test indicated that it will be as good a producer as the discovery well. Hole was drilled to 6,702 ft., where a test was made and it is now running the 7-in. to cement on bottom. Casing then will be perforated and the Morrison tested. The well is located a little more than a mile northwest of the discovery, which was completed early in 1938 at 6,700 ft. for 492 bbl. in 24 hours through the 2½-in. tubing.

Equity Oil Co.'s No. 7 Govt., SW SW SE Sec. 3-1n-102w. T.D. 506 ft. in sd.; tstg.
Equity Oil Co.'s No. 8 Govt., Lot 12, Sec. 10-1n-102w. Loc.
Equity Oil Co.'s No. 14 McLaughlin, NW SE Sec. 32-2n-102w. Drlg. 136 ft.
Raven O. & R. Co.'s No. 25 Govt., SE NW NE Sec. 31-3n-102w. Drlg. 890 ft.
Texas Co.-California Co.'s No. 2 Unit, NW SE SW Sec. 27-3n-94w. T.D. 6,702 ft.; rng. 7-in. to bttm.; will perf. and test.
Buford Oil Co.'s No. 1 Govt., C SW SW Sec. 16-1n-91w. T.D. 3,847 ft., in sd.; fsg. blt.

Routt County

L. C. Craig and L. C. Moore's No. 1-X Irwin, C SW NE Sec. 33-7n-85w. T.D. 1,625 ft.; prep. to run 8¼-in. to S.O.W. in top Dakota at 1,570 ft.

WYOMING

Albany County

J. L. Gaylord-R. G. McConnell's No. 1 Fuller, NW NE NW Sec. 7-15n-75w. Drlg. 1,015 ft. in Dakota; good S.O. in Muddy sd.

Big Horn County

Ohio Oil Co.'s No. 2 Davis-Syverson, SW SW NW Sec. 34-56n-97w. T.D. 1,976 ft.; cmtd. 6⅝-in. at 1,964 ft. with 200 sacks; prep. to test gas in Lakota.
Frank S. Scott's No. 1 Robertson, SE SE SE Sec. 6-54n-93w. T.D. 620 ft.; fsg. blt.
A. L. Rankin's No. 1 Karjala-Rankin, C SW NW Sec. 10-54n-94w. S.D. 847 ft.
Clifford S. Johnson's No. 1 Johnson, CEL NW NW Sec. 24-51n-93w. T.D. 752 ft. in Mowry sh.; Kimball sd. 615-18 ft. and 622-26 ft.; sat. Oath Louie sd. 664-72 ft.; bld. 25 B.P.D., 50% oil.

Carbon County

Following the discovery of big production in the base of the Tensleep in its Nos. 13 and 11-A Wertz on the Wertz dome, the Sinclair-Wyoming Oil Co. is deepening its No. 10-A Wertz, the discovery well. This well was completed in January 1937 at 5,886 ft. for an average of 75 bbl. an hour on a 5-day test. No. 11-A Wertz, which was recompleted last week, made 4,622 bbl. in 24 hours, when drilled deeper.

Sinclair-Wyoming Oil Co.'s No. 10-A Wertz, SW SE NW Sec. 7-26n-89w. Drlg. 5,903 ft.; O.W.D.D. from 5,886 ft.
Albert Dev. Synd.'s No. 1 Boeke, SW NW Sec. 18-25n-79w. Spdg. in the Embar; Tensleep expected at 500 ft.; will go to the Devonian.
Producers Oil Co.'s No. 1 Lake Valley, CNL Sec. 14-20n-88w. Drlg. 2,840 ft.

Converse County

New Era Fuel Co.'s No. 1 Simonson, NW NE SE Sec. 16-32n-68w. S.D. 763 ft. (C.D.); in White River.
Wyshawn Oil Co.'s No. 2 Lindley, C SW SW Sec. 35 32n-69w. T.D. 2,935 ft. in granite; will P.B.
W. W. Austin et al's No. 1 Pfister, SW NE NW Sec. 20-32n-68w. T.D. 713 ft.; cmtd. 5⅛-in. at 710 ft.; S.G. in sdy. sh. 710-13 ft.
New Era Fuel Co.'s No. 2 Gasper, CNL NW SW Sec. 25-32n-68w. Cg. 750 ft.
New Era Fuel Co.'s No. 1 Pestal, SE NE NE Sec. 32-32n-68w. S.D. 540 ft.
U. & I. Oil Synd.'s No. 1 Beaver, SE NW Sec. 29-35n-68w. S.D. 200 ft. for csg.
Blue Ridge Oil Co.'s No. 1 Pokesh, SW NW SE Sec. 29-32n-69w. Drlg. 305 ft.; 10-in. at 300 ft.

Fremont County

Sinclair-Wyoming Oil Co.'s No. 11, CSL NE NE Sec. 15-32n-95w. Drlg. 2,400 ft.
Pilot Oil Co.'s No. 8 Hoffman, C SW SW Sec. 22-3n-1w. Drlg. gr. sh. 950 ft.; S.O. 785-87 ft.
Consolidated Oil Properties' No. 3 Ewart, C SW SE Sec. 16-1n-1w. Drlg. 1,410 ft.
Frank Pouppirt's No. 2 Fidelity Tr., NW NW SW Sec. 27-3n-1w. T.D. 1,200 ft.; C.O. to res.

Hot Springs County

J. W. Bales' No. 1 Govt., CWL NW SE Sec. 21-42n-90w. Spd. to 70 ft. and S.D. for National rig; (test on Lysite Mtn. str.).
John W. Selby's No. 1 Kyne, SW NW Sec. 22-43n-92w. Spdg.

Lincoln County

H. C. Harris et al's No. 1 Govt., SE NW NW Sec. 23-21n-117w. Drlg. 2,018 ft.; more wtr. at 1,930 ft.

Natrona County

Continental Oil Co.'s No. 1 McGrath, C NW SW Sec. 15-34n-78w. T.D. 660 ft.; cmtd. 13-in. at 453 ft. with 322 sacks.
Connelly Drlg. Co.'s No. 1 State, SW SW NW Sec. 36-36n-81w. Drlg. below 1,300 ft.
General Pet. Corp.'s No. 1 Govt., C NW SE Sec. 21-35n-77w. T.D. 8,016 ft.; 6⅝-in. at 7,910 ft.; ran lnr.; swbg. down to test.
Summit Oil Co.'s No. 2 Govt., NW NE NE Sec. 21-33n-80w. Drlg. 940 ft.

Niobrara County

Lance Creek had one completion and one new op-

(Continued on Page 98)

CREEK COUNTY

(Continued from Page 29)

Township 17n-9e has proven a fertile area for this new activity. Located north of the Bristow district, east of Glenn pool and west of the Cushing field, it is an area in which several small pools were opened during the heydey of Creek County development. Today, new work is under way in at least four sectors of that township.

The Zoller pool is a new productive spot in the township. L. J. Zoller, Tulsa geologist, worked surface geology of the area for an oil company in 1920. The Walker pool was opened in Sections 21 and 22-17-9, but development stopped about three-eighths of a mile south of the area geologized by Mr. Zoller.

Years passed. Mr. Zoller became associated with L. J. Phillips and others in the Central Commercial Oil Co. He remembered that area out in 17-9 that he had geologized years ago. He reworked his geology, studied records of wells in the Walker pool, checked subsurface geology. Then the Central Commercial company moved in.

Open Zoller Pool

They drilled No. 1-A Bruce in SW SW SW Section 15-17-9, north of the Walker area, completing it to open the Zoller or Central Commercial pool late in August 1938. It found gas in Bartlesville sand at 2,521 ft., was bottomed at 2,552 ft. in sand, had initial oil production of 15 bbl. an hour, flowing naturally, and settled to 12 bbl. an hour, pinched. A year later it still is flowing by heads. Gravity of the oil is 38°, corrected. Ten feet of gas pay and 20 ft. of oil pay was penetrated. Gas volume has gaged as high as 3,500,000 cu. ft. To date, Central Commercial has completed five wells in the pool, three on the pump and two flowing, and Francis Oil Co. has completed one pumper and one flowing well. All are producing from Bartlesville sand, Dutcher sand and other horizons productive in Creek County remaining to be tested. Dutcher sand is productive in the Walker pool to the south, wells in that sector still averaging 3 bbl. after producing for 16 years. About 30 days are required to complete a well in the Zoller pool. The contract price for drilling is $2 a foot, with the contractor supplying labor, tools and machine. The productive Bartlesville area, it is thought, will cover about 120 acres.

About 1½ miles southwest of the Zoller area, the Strozier pool was discovered in May of this year. Marshall, Strozier & Strozier Drilling Co. opened the pool at No. 1 Baker, NE SE NW Section 20-17-9. It topped Bartlesville sand pay at 2,534 ft., drilled to 2,560 ft. where water intruded and was plugged back to 2,550 ft. to complete. After a squib, it started off at 100 bbl. of oil daily, settling to 65 bbl. Gas gaged 250,000 cu. ft. Broken-sand conditions were

found in dry holes drilled south and west of the discovery. The Strozier company has two locations in proven area to drill "as soon as conditions brighten." Moore Oil Co. and Clyroy Oil Co. have completed a 70-bbl. well at 2,550 ft. as east offset of the discovery, and have another well drilling. J. E. Crosbie, Inc., has a producer north of the Moore well near completion for about 40 bbl. daily in sand at 2,544 ft.

Productive limits of the Strozier pool, it is thought, will extend over about 100 acres.

Other new developments in Township 17-9e include Oswego-lime production in Sections 1 and 12, and Dutcher-sand production in Section 36-17-9 and Section 31-17-10. B. F. Green and L. B. Jackson, of the more active Creek County operators, are developing the Oswego production. The pay is found at around 1,700-80 ft., with initial yields ranging from 30 to 100 bbl. daily.

McAdams & Thornton, C. L. McMahon and others are leading in development of the Dutcher-sand pool in Section 36-17-9 and Section 31-17-10. Some comparatively large producers have been completed in that area. McAdams & Thornton's No. 1 McMahon B, NW NW SW Section 31-17-10, was estimated good for 1,000 bbl. daily in Dutcher sand at 2,686-2,706 ft., total depth. Their No. 1 McLoud in the same section made potential of 554 bbl. when completed recently, and their No. 1 Fast, SE SE NE Section 36-17-9, was rated initially at 600 bbl. from Dutcher sand at 2,710-12 ft., total depth.

The Dunn pool in Section 34-14-10 is another new Creek County area that is attracting attention. It was opened last April at W. M. Dunn and others' No. 1 Cantrell, NW SE SE Section 34-14-10, for 110 bbl. of oil daily. W. M. Dunn and others, Lease Investment Co., H. F. Worley and other operators subsequently have completed wells good for 100 to 500 bbl. daily from Misener sand at around 3,190 ft. With the late discovery of Wilcox-sand production in J. R. Higgins Drilling Co.'s No. 1 Worley, NE SW SE Section 34-14-10, this pool gives promise of considerable important development. The No. 1 Worley initialed 80 bbl. of oil daily from Misener sand at 3,184-89 ft., dropping off to 32 bbl. daily. Deepened to Wilcox sand at around 3,282-95 ft., it flowed 50 bbl. of oil naturally and, after a shot, was reported to have flowed 350 bbl. from Wilcox and 150 bbl. from Misener sand. Several wells are being drilled in the Dunn pool, making it one of the more active sectors of Creek County.

Other new areas in the county are being developed. In Section 29-18-9 Kessler Oil & Gas Co. has found Dutcher-sand production at 2,882-93 ft., with initial yields of 50 to 100 bbl. of oil daily.

The Leverett pool was opened in December 1938 by Midco Oil Corp. with a Red Fork and Bartlesville-sand producer in Section 7-16-10. The discovery well was good for 35 bbl. daily from Bartlesville sand at around 2,350 ft. Additional oil and gas wells have been completed in the area.

Bryan Petroleum Co. found Wilcox-sand production in a new area in the South Manford district a few weeks ago. Their No. 1 Willibey, CSL NE SW Section 22-18-9, located between two dry holes and 2 miles from nearest production, had Wilcox sand at 3,112 ft., pay at 3,127-30 ft., total depth 3,131 ft., plugged back 2 ft., and is producing 25 to 30 bbl. of oil daily, with 15 bbl. of water. The same operators also recently completed a Prue-sand well in NE SE NW Section 18-18-10, Kellyville district, in an area opened some years ago by Bert Swift. Prue sand was found at 1,972-2,045 ft., and the well was estimated good for 75 to 100 bbl. of oil daily, but had not been tested when the current shutdown order was issued. Bert Swift has drilled several sizable producers in the area.

Wilcox Sand Discovery

L. B. Jackson opened a Wilcox-sand pool about 18 months ago in Sections 24 and 25-18-9, the discovery well being in NE NW Section 25-18-9. Sinclair Prairie Oil Co. also has been active in that sector.

E. E. Shamblin, R. R. Kirchner, Royal Oil & Gas Co. and others have been developing new Red Fork and Taneha-sand oil and gas production in Section 13-17-10, in an old sector of the Kellyville district. Shamblin and associates recently completed a 48-bbl. oil well in SE NE NE Section 13-17-10, producing from Red Fork sand at 1,878 ft., total depth 1,914 ft. They also found 3,000,000 cu. ft. of gas from Taneha sand at 2,261 ft., total depth, in a well in SW SE NW Section 13-17-10. These are representative of other operations in the district.

A Dutcher-sand pool is being developed in Sections 4-17-10 and 33-18-10, by Bell Oil & Gas Co., Hartman & Page, L. B. Jackson and others. It was opened about a year ago in NE NW Section 4-17-10. A typical well recently was completed by L. B. Jackson in No. 1 Stanley, SE NE SW Section 33-18-10, good for 75 bbl. daily from Dutcher sand at 2,632-53 ft., total depth.

Burke-Greis Oil Co. opened the Vanderslice gas pool in Section 30-14-7, south of Stroud, last May. It found 4,000,000 cu. ft. of gas in Prue sand at 2,884 ft., total depth. It is southeast of the Sac and Fox oil pool of Lincoln County, which has been intensively developed in Prue sand the past year. Operators hope to find Prue-sand oil production similar to that of Sac and Fox on the Creek County side of the line.

In addition to these new discoveries, considerable work is under way elsewhere in the county, operators seeking new production in the Kellyville, Sapulpa, Mounds, Keystone, Mannford, and Olive districts, as well as around Drumright and Bristow.

CREEK COUNTY PRODUCTION, 1919-38

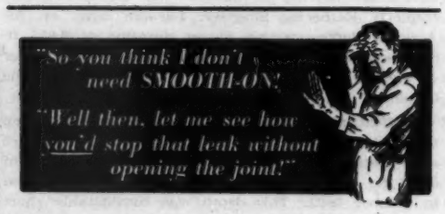
Year—	Bbl.
1919	19,934,294
1920	19,271,610
1921	20,961,619
1922	36,163,035
1923	34,711,524
1924	29,594,300
1925	24,501,390
1926	23,418,154
1927	20,550,970
1928	17,817,045
1929	17,107,430
1930	14,573,477
1931	12,281,970
1932	10,862,661
1933	11,207,908
1934	10,759,797
1935	10,450,368
1936	9,987,120
1937	9,532,595
1938	8,939,873
Total, 20 years	362,627,140
First half 1938	4,375,215
First half 1939	4,645,407

Field Operations

The 50 active operations in the county included some old wells being reconditioned, deepened or plugged back, but the majority were new tests. They were scattered throughout the county, nearly every township having one or more operations. Completion of several wells was delayed due to the statewide shutdown of production, but with the lifting the shutdown order several wells were due to be drilled into the pay and tested.

Two refineries are located at Bristow. The Wilcox Oil & Gas Co. refinery has a crude oil capacity of 5,000 bbl., cracking capacity of 2,000 bbl., and uses the Dubbs method. The Ohio Oil Co. refinery also has 5,000 bbl. crude oil capacity, with 1,500 bbl. cracking capacity, and uses the Kellogg type of cracking plant. The Deep Rock Oil Corp. and Cushing Refining & Gasoline Co. refineries at the city of Cushing, in Payne County, operate largely on Creek County oil produced in the Drumright-Oilton area. Refineries located at Tulsa also utilize Creek County production.

Many natural gasoline plants are located in the county. They include: Devonian Oil Co.'s plant at Kellyville, 20,000 bbl. capacity; Grimes & Neal plant, Drumright, 4,200 bbl.; Gulf Oil Corp., Section 16-17-12, 18,000 bbl.; Gulf Oil Corp., Section 3-14-8, 2,400 bbl.; Magnolia Petroleum Co., Section 7-18-7, 18,000 bbl.; Magnolia Petroleum Co., Section 3-16-7, 6,500 bbl., shut down; O. K. Supply Co., Section 4-17-11, 1,000 bbl.; Oklahoma Gasoline Plants, Inc., Sapulpa, Section 18-18-7, 10,000 bbl.; Oklahoma Utilities Co., Bristow, Section 20-16-9, 5,000 bbl.; M. F. Powers, Depew, Section 8-15-8, 4,000 bbl.; Pure Oil Co., Drumright, Section 32-18-7, 9,900 bbl.; Pure Oil Co., Oilton, Section 32-19-7, 4,600 bbl.; Shell Oil Co., Drumright, Section 8-17-7, 15,000 bbl.; Sinclair Prairie Oil Co., Drumright, Section 28-18-7, 25,000 bbl.; Sinclair Prairie Oil Co., Shamrock, Section 28-17-7, 15,000 bbl.; Skelly Oil Co., Slick, Section 15-15-10, 2,000 bbl.; Texas Co., Section 8-17-12, 21,040 bbl.; Tide Water Associated Oil Co., Drumright, 15,000 bbl.; Victor Gasoline Co., Bristow, 5,000 bbl.; Victor Gasoline Co., Stroud, 2,500 bbl.; Rosa B. Wright, Kellyville, 5,000 bbl.



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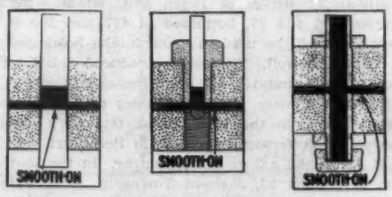

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Eastern Field Report

By STAFF CORRESPONDENT

Garrett County, in Western Maryland, to Get Deep Test

PITTSBURGH, Pa., Sept. 4.—The search for additional gas reserves in the lower Eastern fields moves east with a location in Garrett County, Maryland. The New Penn Development Co., William E. Snee and others are moving in material on the Humberson, formerly Katherine Shartzer, 160-acre farm, on the Accident dome, starting at an elevation of 2,615 ft. The location is about ½ mile northwest of the center of the town of Accident. The probable depth to the Onondaga is 6,500 ft.

In 1920, a test on this large dome was started on the Speicher farm, elevation 2,390 ft., and about 3/5 mile southwest of Accident, and reached a depth of 5,160 ft. It was dry at that depth, and abandoned in October 1922. This depth was considerably short of the lower Devonian.

SOUTHEAST OHIO

In Madison Township, Columbiana County, Southeast Ohio, the test of the Natural Gas Co. of West Virginia on the E. W. Strudthof farm was drilled through Oriskany sand to 4,438 ft., and was dry. Top of the Corniferous lime was at 4,156 ft. and Oriskany sand at 4,405 ft.

In Licking County Ohio Fuel Gas Co. completed a gas well on the William Samilson farm, Lot 20, Newton Township, in Clinton sand at 2,575 ft., and it gaged 260,000 cu. ft. a day. In Section 6, Mary Ann Township, this company drilled a dry hole on the Mary Glover farm through the Clinton sand at 2,646 ft.

In Medina County N. Y. O. Oil Co. completed three wells on the Thomas Brown, Jr., farm in Section 16, Chatham Township, in Berea grit, all showing oil, but Nos. 26 and 27, bottomed at 417 and 390 ft. respectively, will be used as water-intake holes and No. 28 as an oil well. The latter produced 5 bbl. of oil the first day and 15 bbl. after the shot.

In Noble County D. R. Greenlees and others completed No. 4 on the Belle Oil & Gas Co.'s lease in Section 15, Jefferson Township, in Berea grit at 1,668 ft. It will make a 3 or 4-bbl. pumper. In the southern part of Section 22, Jackson Township, J. L. Skinner completed a test on the Alvin Dixon farm in Berea grit at 1,645 ft., and it is a gas well gaging 23,000 cu. ft. a day.

In Washington County E. F. Montgomery completed No. 5 on the Charles F. Gross farm in Section 37, Salem Township, in Macksburg sand at 970 ft. It is good for 140,000 cu. ft. a day. It was deepened to 1,120 ft. and the lower sand was dry. In Section 7, Aurelius Township, C. D. Fogle and others drilled No. 2 Marietta Realty Co. lease through the Macksburg sand to 515 ft. It was dry.

In Poland Township, Mahoning County, the test of the Tri-State Gas Co. on the T. W. Baird farm is still shut down in the Onondaga lime at 3,950 ft.

SOUTHWEST PENNSYLVANIA

In Armstrong County, Pennsylvania, John Wray and others completed a gas well on the Walter Upperman farm in Boggs Township at 1,325 ft., in Murraysville sand. It gaged 500,000 cu. ft. a day. In Cowanshannock Township Ed Young and others completed a gasser on the Wilda McCurdy farm at 3,698 ft. with 65,160 cu. ft. of gas at 3,670 ft., having a rock pressure of 950 lb. L. F. Watson and others, on the Harry Boyer farm, had pay at 3,418-69 ft. and at 3,436 ft., 55,000 cu. ft. of gas. Peoples Natural Gas Co. is completing the test on the Jacob Harkleroad farm with the tools at 3,403 ft. J. C. Sefton and others were shut down at 3,482 ft. on the John Sowers farm, with sand at 3,305-3,403 ft. gaging 51,600 cu. ft. a day, and with a show of gas at 1,312 ft.

In Kiskiminitas Township Apollo Gas Co. made a location for No. 731 on the J. P. Wilson farm. Bromen & Dorcey and others made a location for No. 4 M. M. Maryin farm. Peoples Natural Gas Co. reached the top of the sand at 3,675 ft. in No. 7767 J. M. Dunmire in this township and shut down to make engine repairs.

In Parks Township Peoples Natural Gas Co. are cleaning out at 3,285 ft. in No. 7757 N. F. Altman with a total depth of 3,354 ft., and a light showing of gas through the bridge. In Plum Creek Township William McCollins and others are moving in on the Add Reefer farm. In Boggs Township John Wray and others have the rig up for the William Mateer test. In Manor Township this company is drilling at 2,630 ft. in the Dora E. Myers test. In Gilpin Township Pleasant Valley Gas Co. is drilling at 2,192 ft. on the J. J. Klingensmith farm.

Clarion County

In Limestone Township, Clarion County, Kimmell Gas Co. is drilling at 1,100 ft. on the J. P. C. King farm with a showing of 80,000 cu. ft. of gas in the Thirty-Foot sand. Squirrel Hill Gas Co. is down 500 ft. in a second test on the N. A. Sloan farm.

In Porter Township Owens-Illinois Glass Co. is drilling at 1,600 ft. on the John Shanefelt farm. In Elk Township Dempseytown Gas Co. is fishing at 5,742 ft. in the deep test on the George C. Wilson farm.

Fayette-Greene Counties

In German Township, Fayette County, R. B. Vaughn and others drilled a dry hole on the Harold Newcomer farm at 2,525 ft. with the Elizabeth sand at 2,460-98 ft.

In Greene County, C. L. Sample deepened No. 1 J. Phillips in Richhill Township to 2,606 ft. with Gordon stray sand at 2,315-23 ft., and 116,000 cu. ft. of gas at 2,317 ft. In this township, A. Phillips and others are drilling at 2,190 ft. on the E. Sheppar farm.

In Center Township, Greene County, Equitable Gas Co. will deepen No. 1 Eli Orndoff. In Monongahela Township O. I. Dille and others are down 2,552 ft. on the John Barclay farm. In Greene Township Fred Garrison is drilling at 400 ft. in the Henderson Coal Co.'s test.

In Center Township Morgan Henderson, agent, is drilling at 1,636 ft. in No. 4 J. L. Metz. In Greene Township Brummage and others have reached 640 ft. in the H. Durr test.

Washington County

In Bethlehem Township, Washington County, W. L. Potts is rigging up on the Hen Kinnemond farm. In West Bethlehem Township Wherry and others made a location on the Weir heirs farm.

In Morris Township Union Gasoline & Oil Corp. is drilling at 2,270 ft. in No. 819 John R. Andrew. In South Franklin Township this company is moving in machine for No. 822 C. T. Conn farm.

In North Strabane Township Keystone Drilling Co. is deepening No. 1 Mary V. Neil from the Injun sand, and is drilling at 2,142 ft., with the Gantz sand at 2,114 ft., and a show of gas at 2,117 ft.

In South Franklin Township W. B. McCloy has started drilling on the Clark Rankin farm. Union Gasoline & Oil Co. is deepening on the Samuel Waters farm, with the bottom of the Fifth sand at 2,787 ft.

In West Deer Township, Allegheny County, D. A. McKnight has started drilling on the John H. Flick farm. Larkin and others are drilling at 1,425 ft. on the G. Jeuther test.

Deep Tests

In Armstrong County Peoples Natural Gas Co. is drilling out cement at 6,500 ft. on the Lowry Martin farm in Wayne Township after having reached 6,544 ft. and cemented back, due to a cave. The top of the Onondaga lime was at 6,547 ft.

On Chestnut Ridge, Fayette County, New Penn Development Co., William E. Snee and others were drilling at 3,600 ft. on the Piedmont Coal Co. land in North Union Township.

In Butler County South Penn Oil Co. has reached 3,250 ft. on the M. A. Fowler heirs farm, in Concord Township.

WEST VIRGINIA

In Ritchie County, West Virginia, Square Oil Co. completed No. 4 Merle Carpenter in Grant district at 2,075 ft., in Squaw sand. It is good for 25 bbl. a day.

In Pleasants County, Clyde E. Cokeley completed a test on the Arthur M. Cokeley farm in Grant district in the Cow Run sand at 743 ft. and it will make a 1-bbl. pumper.

In Roane County Rogers Properties Co. completed No. 5 F. F. McIntosh and W. P. Norman lease in Curtis district at 1,878 ft., with Salt sand topped at 1,848 ft. and 5 bbl. a day at 1,848-78 ft. after a 60-qt. shot. No. 3 Alfred Moore of this company is less than a 1-bbl. pumper in Salt sand at 1,868 ft. H. H. Statts and others completed the test on the Alice (C. L.) Monroe farm in Salt sand at 1,854 ft., and it is good for 8 bbl. a day.

Gas Wells

In Boone County Pure Oil Co. completed a gas well on the L. N. Sutphin farm in Sherman district at 4,872 ft., with Corniferous lime topped at 4,870 ft., and a gage of 675,000 cu. ft. a day from the Brown shale and Berea sand. In Scott district Owens, Libby-Owens Gas Department drilled No. 4 J. W. Bedford to 4,136 ft., and it was dry.

In Braxton County Pittsburgh & West Virginia Gas Co. completed No. 7684 Florence Duffield farm, in Birch district at 1,940 ft., with gas gaging 1,170,000 cu. ft. a day at 1,931-40 ft. Same company completed No. 7677 E. F. Martin farm at 1,441 ft. with Salt sand at 1,402 ft., and 1,300,000 cu. ft. of gas at 1,431-41 ft. In Otter district, this company completed No. 7686 Norman Goad at 1,442 ft. with the Maxton sand at 1,392 ft. and 700,000 cu. ft. a day at 1,411-28 ft.

In Cabell County R. H. Adkins, trustee, completed the second gas test on the U. G. Bledsoe farm, in Grant district, at 2,216 ft. It is good for 176,000 cu. ft. a day.

In Calhoun County McIntosh & Grimm, on the Creed Yoak farm in Sherman district, have a 315,000-cu. ft. gas well at 2,160 ft.

In Ritchie County Creed Barker deepened No. 1 Lewis Barker in Murphy district to 1,566 ft., struck a fair pay, gaging 1,975,000 cu. ft. a day. John R. Geho completed the W. B. Morris heirs' test in Injun sand at 1,992 ft. and it tested 495,000 cu. ft. a day.

In Tyler County W. E. and Sarah C. Morgan drilled a dry hole on the Clarence Mikes farm in Union district through Cow Run sand to 779 ft. In Wirt County Silman & Whitecotton deepened No. 1 Thomas Ash in the second Cow Run sand to 296 ft., and it is only showing ¼ bbl. of oil a day.

In Logan County Hope Natural Gas Co. completed No. 7842 Albright in Logan district at 2,842 ft., good for 200,000 cu. ft. of gas per day.

In Wayne County, the second test of the Owens, Libby-Owens Gas Department on the Glenhayes Co. lease, in Lincoln district, found Big lime at 1,152-1,346 ft., with 146,000 cu. ft. of gas at 1,276-82 ft., which blew down to 39,000 cu. ft. a day.

Oriskany Gas Field

No Oriskany sand wells were completed during the week but one gas well was completed in Brown shale in Union district, Kanawha County, where the Ajax

(Continued on Page 94)

Oklahoma Operations

By DAL DALRYMPLE

Two Big Oil Wells at Ramsey; Earlsboro Field Given Revival

Several wildcats held interest of operators as the state-wide shutdown in Oklahoma was lifted last Friday and activity in proven fields again became normal, but none of the more interesting outposts were causing any great amount of excitement. Resumption of normal operations was accomplished without serious trouble. Several wells that had been shut in, awaiting orders, were due for early completion.

Hall & Briscoe, Inc., and others' No. 1 Thompson, SW SW NE Section 28-13-1e, wildcat near Jones, Oklahoma County, gave promise of opening a pool. Saturation in sand was found at 4,798-4,808 ft., as revealed by electrical survey. It showed 11 joints of oil on drill-stem test, with some gas but no salt water. Another Oklahoma County wildcat that previously had looked good because of high structural position, was due for abandonment. It was Westcott & Nagle's No. 1 Kramer, NE NE NE Section 17-12-1w, north of Nicoma Park, which found white, salty sand in the second Wilcox zone at 6,642-60 ft., total depth.

Sinclair Prairie Oil Co.'s No. 1 Ward, SE SE SE Section 30-7-1e, wildcat northeast of Lexington, Cleveland County, was reported to have cored at 6,647-64 ft., with recovery of about 15 ft., the first half of the core being dry and the lower half showing some black oil in sandy dolomite. The wildcat was checking more than 100 ft. higher than a nearby failure in Viola lime at 6,405 ft.

Caddo Wildcat Has Show

Another wildcat being drilled by the Sinclair Prairie company claimed a share of interest at the week end as it was reported to have passed up two oil and gas showings. This was the No. 1 German, SW NW NW Section 1-16n-13w, in the Carnegie area, Caddo County. It had one showing at 6,030-40 ft. and another at 6,220-30 ft., and was drilling ahead below 6,270 ft. Location is in the Anadarko basin and west of the Cement field.

Gas was reported showing at Anderson-Prichard Oil Co.'s No. 1 Geis, C NE SW Section 15-18-9w, wildcat northwest of Kingfisher in the county of that name. It was bottomed at 7,357 ft. in lower Pennsylvanian lime, and the crew was reconditioning the hole preparatory to drilling ahead. The gas showing was found at 7,347-57 ft., but the hole bridged and it had to be drilled out. Gas still was showing through mud and added weight material in the hole. Location is on a 7,000-acre block, with the Anderson-Prichard and Magnolia companies jointly holding the bulk of the leases.

Continental Oil Co. continued to fish for drill pipe at No. 1 Proctor, C NW¼ Section 28-10-20w, Washita County, currently the world's deepest drilling test. It was bottomed at 14,479 ft.

The Ramsey pool in Payne County, quiescent for several weeks, claimed the spotlight again as the thirty-fifth well in the area was completed for gusher production at Mid-Continent Petroleum Corp.'s No. 11 Ramsey, NW cor. Section 18-18-2e. It was washed in Saturday, flowing 445 bbl. of oil the first hour, with 6,550,000 cu. ft. of gas, and 390 bbl. of oil and 6,450,000 cu. ft. of gas the second hour. It was shut in, potential being estimated at 10,037 bbl. of oil daily. Location is on the north edge of the community block. It had Wilcox sand at 4,782-4,801 ft.

Among the Wildcats

Foley, Dye and others' No. 1 Belter, C SE Section 32-28-10w, wildcat in northern Alfalfa County, found Wilcox sand at 5,700-21 ft., second Wilcox sand 5,745-90 ft., total depth, and was dry and abandoned.

Youngblood and others' No. 1 Ellete, SW NE SE Section 6-8-8, about 2½ miles north of Wewoka in Seminole County, was dry and abandoned in Senora sand at 2,223-47 ft., total depth.

Yorkan Production Co.'s No. 1 Hoffman, NW NW NW Section 26-11-3e, northwest of Shawnee, Pottawatomie County, topped Wilcox sand at 5,725 ft., second Wilcox sand 5,803 ft., and was dry and abandoned at 5,805 ft.

Kirk-Green-Way, Inc.'s No. 1 Boland, SE NE NW Section 28-11-3e, east of Dale, Pottawatomie County, had Wilcox sand at 5,853 ft., second sand 5,885 ft., was bottomed at 5,905 ft., and was dry and abandoned.

Shell Oil Co.'s No. 1 Mosena, C W½ W½ SE Section 9-21-2e, Noble County wildcat, found first Wilcox sand at 4,456 ft., second Wilcox sand 4,519 ft., drilled to 4,533 ft., plugged back without success and was dry and abandoned.

Lewis & Meyers' No. 1 Ford, NE NE SE Section 14-7-18w, wildcat west of the Hobart pool, Kiowa County, had granite wash at 1,720 ft. and was dry and abandoned at 1,786 ft. in granite.

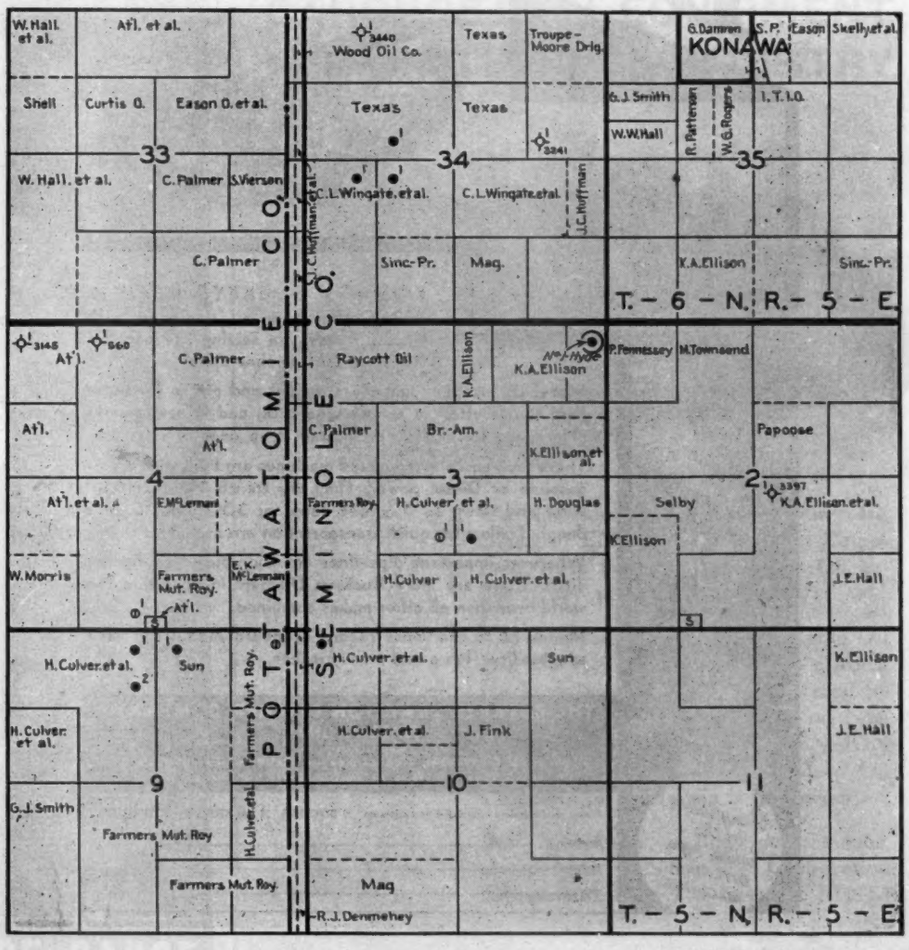
Another Ramsey Well

The thirty-fourth Ramsey producer was washed in Friday, immediately following lifting of the shutdown. It was Mid-Continent Petroleum Corp. and others' No. 2 Simpson, SW cor. Section 7-18-2e, just north of the community block. It flowed 55 bbl. of oil in 20 minutes from Wilcox sand at 4,875-82 ft., total depth, was shut in and due to be reopened for potential test this week.

In the Coyle pool, Payne County, Texas Co. was testing at No. 2 Longan, C E½ NW NW Section 12-17-1e. Wilcox sand was found at 4,860-80 ft., total depth, and after being shut in for a week it was reopened and flowed 80 bbl. of oil in 15 minutes. At the south end of the pool, Helmerich & Payne, Inc.'s No. 2 Collins, C W½ NW NW Section 13-17-1e, was bottomed at 4,882 ft. and flowed 225 bbl. of oil through chokes in 24 hours. Production was from Wilcox sand.

The old Earlsboro field was given a northwest extension in Pottawatomie County at George L. Pace's No. 1 Hale, C SW NE Section 31-10-5e. Originally drilled to 4,458 ft., total depth, in Wilcox sand, where water intruded, it was plugged back to Viola lime topped at 4,383 ft. Producing from the Viola, it flowed 1,300 bbl. of oil in 8 hours and was shut in for pipeline connections.

E. P. Kerr and associates have started work at No. 1 Harrington, NW NW NW Section 29-4-9e, on the west flank of the West Earlsboro pool, Pottawatomie County. At the week end it was drilling around 1,700



Midcontinent Map Co., Tulsa

Kenneth Ellison has opened a Hunton lime pool in Section 3-5-5, south of the town of Konawa, Seminole County, and northeast of the pool recently opened across the line in Pottawatomie by Harry Culver and associates

ft., with J. B. Omara, Shawnee drilling contractor, in charge. Contract depth is 4,300 ft., with the Earlsboro, Misener, Hunton, Viola, Simpson and Wilcox zones due to be tested.

Seminole-Pontotoc Counties

Winona Oil Co.'s No. 1 Tiger, SW NW SE Section 18-7-8, Fish pool, Seminole County, had Cromwell sand at 3,189 ft., Wilcox sand 4,235-56 ft., total depth, plugged back to 3,316 ft., was shot at 3,277-92 ft. and completed for 12,500,000 cu. ft. of gas, with 865 lb. rock pressure.

E. H. Moore, Inc.'s No. 3 Frazier, SE NW NW Section 23-2n-7, Fitts district, Pontotoc County, twin well, was bottomed at 1,362 ft., recovered mud after a shot at 1,312-35 ft., and was dry and abandoned.

Creek-Lincoln Counties

Forcum's No. 3 Gabriel, NW NW SW Section 24-19-7, Cushing field, Creek County, had Red Fork sand at 2,631 ft., total depth 2,673 ft., was shot and completed for 75 bbl. of oil daily.

Sinclair Prairie Oil Co.'s No. 1 fee, SE SW SW Section 24-17-7, an old well, was deepened from 2,456 ft. to Prue sand at 2,511-30 ft., total depth 2,535 ft., and recompleted for 1,500,000 cu. ft. of gas. Same company's No. 2 Rentie, NW NE SW Section 2-14-8, an old well, was deepened from 2,405 ft. to Dutcher sand at 3,192 ft., total depth 3,231 ft., was plugged back and shot, but was dry and abandoned.

In Lincoln County Phillips Petroleum Co.'s No. 1 Witmer, SW SE NE Section 35-15-2e, North Wellston area, an old well bottomed at 5,129 ft., was deepened to second Wilcox sand at 5,220-37 ft., total depth, water intruded, it was plugged back and perforated at 4,500-25 ft., produced 8,000,000 cu. ft. of gas and was shut in.

Logan County

Sinclair Prairie Oil Co.'s No. 1 Shaffer, NE NE SW Section 28-17-4w, Crescent area, Logan County, an old well bottomed at 6,647 ft. in second Wilcox sand, was plugged back to 5,744 ft. and acidized, but was temporarily abandoned.

Tulsa-Pawnee Counties

A 2-bbl. well was completed in the Keystone district, Tulsa County, at Holmes' No. 5 Burnett, CNL SW NW Section 7-19-10. It topped Cleveland sand at 1,116 ft., was shot at 1,117-24 ft., and was bottomed at 1,170 ft.

In Pawnee County, Platter's No. 1 Butler, SE SE NE Section 5-20-9, had Bartlesville sand at 2,114-35 ft., total depth, lost the hole and was abandoned.

Carter-Stephens-Jackson

Shell Oil Co.'s No. 58 McClure, NE SW SE SW Section 5-4s-3w, Healdton area, Carter County, was dry and abandoned at 1,193 ft.

Carl Carter's No. 1 Lundy, NW NE SW Section 15-1s-5w, Velma area, Stephens County, had sand at 695-704 ft., total depth, and gas was estimated at 1,000,000 cu. ft.

Gulf Oil Corp.'s No. 5 Eley, C SE Section 10-1n-20w, Altus area, Jackson County, set 7-in. casing at 1,378 ft., total depth 1,536 ft., and pumped 36 bbl. of oil in 24 hours.

In Murray County Kerlyn Oil Co.'s No. 1 Wolfe, NW NW SW Section 8-1n-2e, was an abandoned location.

New Operations

Magnolia Petroleum Co.'s No 1 Margay, SW SW NE Section 29-25-8w, was location for a wildcat about 4 miles southwest of Nashville in southwestern Grant County, and northwest of the Hillsdale pool in Garfield County

Location for a wildcat in Hughes County was announced at Lynch and others' No. 4 Bird, C NE NW Section 5-18-11. It is about 4 miles southwest of Wetumka and 5½ miles east of the North Yeager gas pool.

Eastern Fields

(Continued from Page 92)

Gas Co. bottomed the Anna F. Trent and others' test at 3,978 ft., at which depth it gaged 157,000 cu. ft. a day.

In Poca district, Kanawha County, Godfrey L. Cabot, Inc., topped the Oriskany sand at 5,022 ft. in No. 2 Putnam Co., and at 5,028 ft. had a volume of 200,000 cu. ft. a day. It was shut down to test casing. This operator is drilling at 565 ft. in the Poca Coal Land Co.'s test.

In Elk district Columbian Carbon Co. topped the Corniferous lime at 5,025 ft. in the Mose Pushkin test, and is drilling at 3,470 ft. in the Lelia Hanna test, and at 1,691 ft. on the Tignor & Jordon land. In Union district M. C. Allen is rigging up the A. W. Benden test, and the Superior Realty Co. test.

La.-Ark. Fields

(Continued from Page 80)

Cotton Valley—Webster Parish

Stanolind Oil & Gas Co.'s No. 2 Pardee, Section 25-21-10, 20 bbl. per hour of distillate through 20/64-in. choke, tubing pressure 1,900 lb., casing pressure 1,250 lb., 7-in. casing at 8,332 ft., total depth 8,379 ft.

ARKANSAS COMPLETIONS

Wildcat—Columbia County

Atlantic Refining Co.'s No. 1 Pine Woods Lumber Co., C NE NE Section 16-18-22, 22 bbl. per hour, 18/64-in. choke, tubing pressure 750 lb., casing pressure 1,150 lb., total depth 9,002 ft.

Magnolia—Columbia County

Phillips Petroleum Co.'s No. 2 Longino, C NW SE Section 15-17-20, 339 bbl. per day through 20/64-in. choke, tubing pressure 1,325 lb., casing pressure 1,430 lb., total depth 7,736 ft.

Buckner—Columbia County

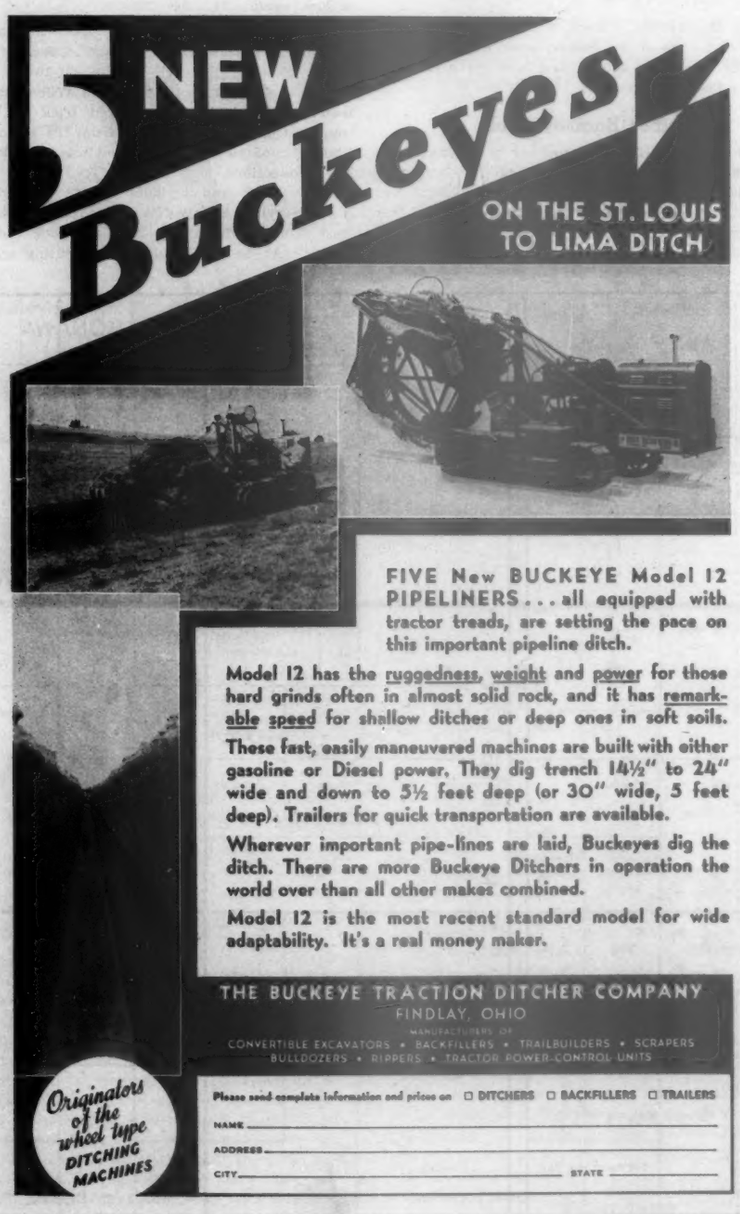
Standard Oil Co. of Louisiana's No. 1 Nancy Johnson and others, 660 ft. out of SW cor. SW SE Section 9-16-22, 10 bbl. per hour through 13/64-in. choke, casing pressure 100 lb., tubing pressure 260 lb., total depth 7,272 ft.

Lewisville-Stamps—Lafayette County

East Texas Refining Co. and others' No. 2-A Warren, C N½ NW NW Section 24-16-24, flowing 122 bbl. per day through $\frac{1}{4}$-in. choke, tubing pressure 400 lb., total depth 3,500 ft.

Smackover—Union County

Bob Milam's No. 1 Primm estate, SE cor., Lot 5, NE Section 1-16-16, 900,000 cu. ft. of gas and a spray of salt water, shut-in pressure 340 lb., total depth 2,579 ft.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Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ont., Sept. 4.—New completions in the Turner Valley field were Winalta Royalties' No. 1, LSD 15, Section 5-19-2w5, finished in the lime at 7,253 ft. and producing 349 bbl. initially; Anglo-Canadian Oil Co.'s No. 4, LSD 6, Section 17-18-2w5, finished at 8,295 ft. for 489 bbl. per day, and Royalite Oil Co.'s No. 41, LSD 1, same section, finished at 7,415 ft., with 427 bbl. initial allowable.

Recent completions have brought the total number of crude producers in the Turner Valley field to 87, with 2 wells testing production, and 15 drilling. Potential of the field through 1-in. choke was 71,862 bbl. for 82 wells. Heavy crude production during the summer months has built up substantial reserves in storage, and with a lighter harvest than anticipated, the petroleum demand is lower than expected. A temporary increase in the aggregate allowable to possibly 25,000 bbl. may be made for a short time in September, but it is not expected the 1938 peak allowable of 28,000 bbl. will be reached.

Tests in the Lime

In Section 32-18-2w5, British Colonial Oils' No. 1, LSD 5, finished in the lime at 8,264 ft., has been given an increase in allowable from 400 to 454 bbl. a day.

In Section 29-18-2w5, Royalite Oil Co.'s No. 39, LSD 3, finished at 7,915 ft., was given allowable of 428 bbl. after acidizing, replacing temporary allowable of 200 bbl. In Section 17-18-2w5, Royalite's No. 41, LSD 1, finished at 7,415 ft., was increased from 427 to 432 bbl. Daily flow through 1-in. choke was 1,508 bbl.

In Section 17-18-2w5, Extension Royalties' No. 2, LSD 11, was finished at 8,254 ft., 471 ft. in the limestone. The well started clearing itself by heads and looks like a large producer, but will be acidized before making definite production test. In the same section, Anglo-Canadian Oil Co.'s No. 6, LSD 3, is below 8,166 ft. after getting the Madison limestone at 7,797 ft.

West of the main field, Okalta Oil Co.'s No. 6, LSD 3, Section 30-18-2w5, has cemented off the entire lime formations and is testing the upper sands after gun perforating the casing.

Farther south, Scottish Petroleums' No. 1, LSD 16, Section 19-18-2w5, which encountered salt water in the lower lime at 9,001 ft., has plugged back for a test of the upper porous zone. Early tests after acidizing indicate no water in the upper horizon but only a small oil production.

Ontario Operations

In the Petrolia-Enniskillen field, Lambton County, Ontario, Volcanic Gas & Oil Co. has spudded No. 1 test on the John Mackesy farm, on Highway 21, south of Oil City. Location is about 6 miles south of Petrolia, and contract is being handled by Stover & Rawlings of Chatham. Location was made following systematic seismographic tests of the Petrolia-Enniskillen and adjacent shallow crude areas; and drilling will probably be carried to the granite unless production is encountered in the upper horizons.

W. J. Hussey's No. 1 Peninsular Sugar Co. property, in the town of Petrolia, after a shot at 460 ft., pumped 9 bbl. in 24 hours, but later dropped to about 2½ bbl. a day. Electric motor is being used for pumping. The well, started last year, was located by Professor Gladstone, mystic and prognosticator.

In the Warwick field, the producing area has been extended from Warwick Township, Lambton County, southeast into Metcalfe Township, Middlesex Coun-

(Continued on Page 115)

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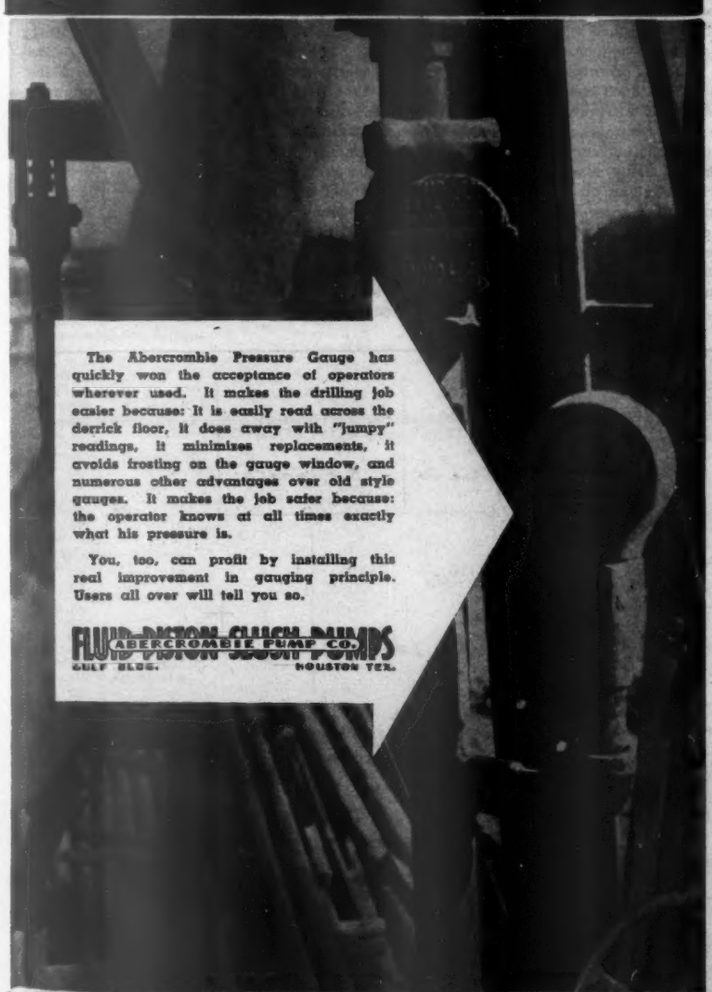
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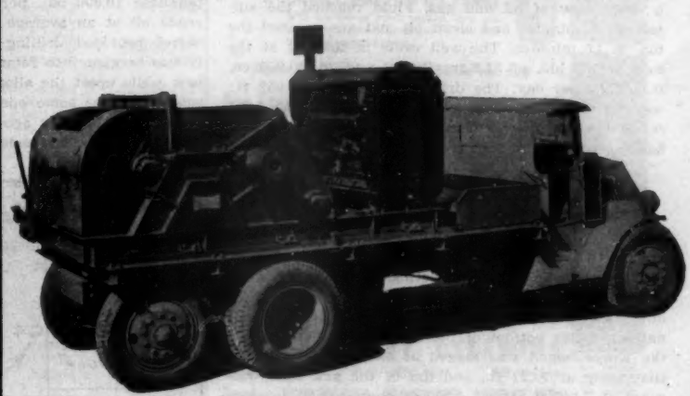

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California Field Report

By
L. P. STOCKMAN

Santa Maria Gets Price Cut; Coalinga Field Is Extended

LOS ANGELES, Calif., Sept. 4.—Union Oil Co. extended the Northeast Coalinga field to the west late last week when No. 86-18 Cook in Section 18-19-16 was brought in flowing 500 bbl. of 32.4-gravity oil and 600,000 cu. ft. of gas per day behind a 12/64-in. bean, from the Eocene, with bottom of the hole at 8,240 ft. Tubing pressure reached 1,350 lb. and casing pressure gaged 1,450 lb. after the well got under way indicating that it is capable of flowing at least 3,000 bbl. per day. Top of the productive Avenal zone of Eocene age was logged at 7,963 ft. The top of the productive zone was blanked off in order to reduce the production of gas. No. 86-18 Cook is the third productive well in the Northeast Coalinga field since its discovery on April 24, 1939, by Amerada Petroleum Corp. No. 5-17 S.P.L. in Section 17-19-16 of this company is drilling ahead at 6,790 ft. and should be completed within another 2 weeks.

Standard Oil Co., at 7,972 ft., topped the Eocene in No. 73-19-B in Section 19-19-16, and should have it ready for a production test within a few weeks. Bandini Petroleum Co., which is drilling No. 48-18 Webb in the SW¼ Section 18-19-16, west of Union Oil Co.'s new completion, has been held up by mechanical trouble for several weeks, but has cleaned out the hole to 7,712 ft. Bottom of the hole is 8,093 ft., so that 381 ft. of drill pipe remains to be recovered. This well, on a formation test for water shut-off with a 1,000-ft. water cushion and open 1 hour, resulted in a short flow of oil and gas. Fluid reached the surface in 9 minutes and clean oil and gas reached the top in 17 minutes. The well came in flowing at the rate of 750 bbl. of 51.2-gravity oil and 30,000,000 cu. ft. of gas per day. The drill pipe parted at 7,052 ft., well up within the 7-in. water string, landed at 7,975 ft., and while progress has been quite slow the crew has hopes of ultimately recovering all of the fish.

Southeast Coalinga

R. S. Lytle, operating for former stockholders of Petroleum Securities Co., Honolulu Oil Corp., and Seaboard Oil Co., extended the southern limits of Southeast Coalinga by completing No. 7-18-F flowing 2,025 bbl. of clean 31.7-gravity oil and 1,485,000 cu. ft. of gas per day from the productive Gatchell or Avenal zone with bottom of the hole at 7,650 ft. Top of the Kreyenhagen was logged at 6,024 ft.; top of the Glauconite at 7,127 ft., and top of the grit zone was cored at 7,147 ft. About 4,000 ft. southeast of production in the Southeast Coalinga field, E. A. Parkford logged top of the Kreyenhagen at 6,523 ft. in his No. 1, and while this well was running about 500 ft. lower structurally than No. 7-18-F mentioned above, it still has a chance of resulting in commercial production. This outpost is being watched closely because adjacent acreage is broken up into small parcels that will be developed if Mr. Parkford succeeds in securing commercial production. The Southeast Coalinga field with 33 completed wells is capable of producing well in excess of 100,000 bbl. per day but has only been allowed to produce 1,199,434 bbl. to date. R. S. Lytle heads the list with 17 flowing wells followed by Superior Oil Co. with 9 completed wells, Standard Oil Co. with 5 wells and the Texas Co. with 2 flowing wells. In the acreage being developed by Mr. Lytle, Seaboard Oil Co., and Honolulu Oil Corp., each has a 25 per cent interest, the remaining 50 per cent being held by Petroleum Security interests.

Santa Maria Valley

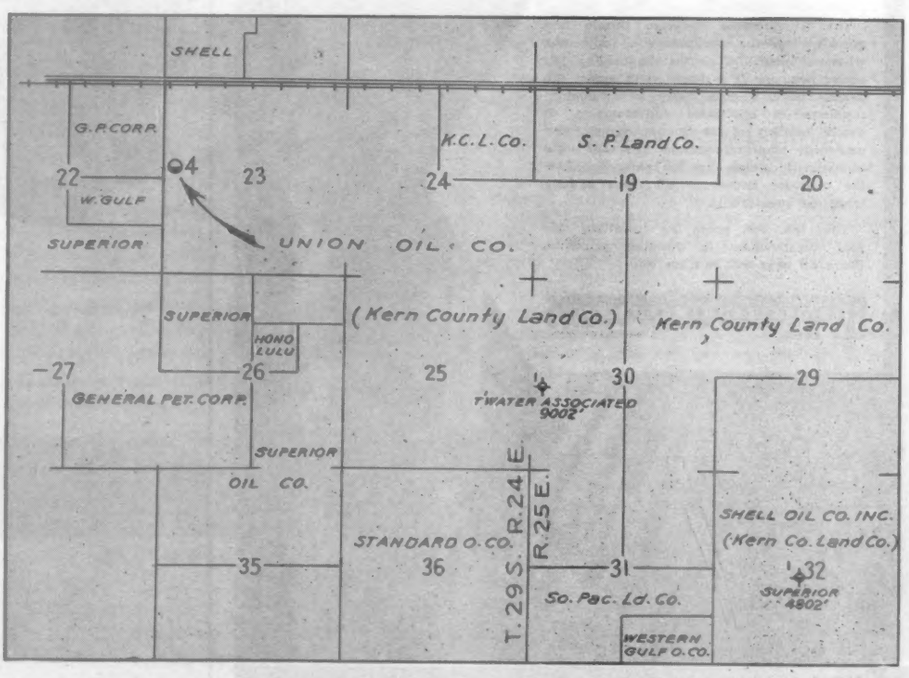
Due to the chaotic conditions existing in the Santa Maria Valley field and the possibility that additional drilling may have to be undertaken, Union Oil Co. reduced the price of Santa Maria Valley crude oil, effective September 1, approximately 24 cents per barrel. This is the first change since October 14, 1938, when the company posted a price of 63 cents per barrel for 13-gravity oil; 65 cents for 14 gravity; 68 cents for 15 gravity; and 70 cents for 16-gravity oil and above. The new schedule starts at 42 cents per barrel for 14-gravity oil; 44 cents per barrel for 15 gravity; 45 cents per barrel for 16-gravity oil, and ends with 46 cents per barrel for 17-gravity oil and above. This new price is slightly higher than the present going price in the spot market as recent quotations have been around 30 cents per barrel. The significance that attaches to this reduction in price lies in the fact that Union Oil Co. may now be able to ship some of this crude oil to the East Coast. Heretofore the price has been too high to permit the movement of any large quantity of crude oil to the Atlantic seaboard for domestic consumption. The existing unsettled situation in the Santa Maria Valley field reflects the resumption of drilling operations on the part of certain operators and the possibility that additional drilling may now become necessary.

Due to a misconception on the part of some operators in the Santa Maria Valley field, Shell Oil Co. has been erroneously charged with the responsibility of having created the present situation by discontinuing its crude oil purchases in that field. Such has not been the case. The existing situation is attributed to the resumption of drilling by a few operators, as this action voided the agreement of marketing companies to purchase 10,000 bbl. per day of Santa Maria Valley crude oil at an average price of about 70 cents per barrel provided drilling operations were suspended. It was necessary to retard drilling operations because new wells upset the allotment from time to time and would penalize some operators. The present situation began several weeks ago due to additional drilling in violation of the agreement. At present Fred Cole is the only operator doing any drilling but completion this week of Mr. Cole's No. 19 in Section 29-10-34, flowing 4,250 bbl. of 15.8-gravity oil per day, will make it necessary for Union Oil Co. to undertake offset work. The latter company has staked locations for No. 6 Vicente to offset Cole's No. 19 on the north and for No. 3-2 O'Donnell, which will offset the Cole well on the west. The staking of location for No. 6 Vicente will make it necessary for Union Oil Co. to drill No. 4-2 O'Donnell as an offset to No. 6 Vicente and thus it continues until offset drilling again forces operators to undertake new work. No. 19 of Fred Cole was finished in the Franciscan basement at 5,417 ft. with a 7-in. water string landed at 5,062 ft., and the well is producing from approximately 320 ft. of formation.

Wilmington

In the Wilmington field of Los Angeles Basin, Signal Oil & Gas Co. completed No. 5 S.P. flowing 140 bbl. of 15.8-gravity oil per day from the Ranger zone and 580 bbl. daily from the Terminal zone, and No. 4-D L.B.H.D. flowing 145 bbl. per day from the Ranger zone and 448 bbl. daily from the Terminal zone. No. 5 S.P. was finished at 4,163 ft. No. 4-D, located on property leased from the Long Beach Harbor Commission, was completed flowing through a 22/64-in. bean but this was later reduced and the Ranger zone shut in. Long Beach Oil Development Co. finished another tideland well, No. 2-W, flowing 380 bbl. of 26.9-gravity oil per day from the Terminal zone, with bottom of the hole at 3,900 ft.

Dumm Petroleum Co. completed No. 2 Harbor, flowing 146 bbl. of 15.4-gravity oil cutting 4 per cent from a depth of 3,444 ft. in 13 days' total elapsed drilling time from spud to completion. Drilling operations have steadied down in the Wilmington field but at least 100 locations will be drilled in the tideland



Union Oil Co. has started a wildcat in the Goose Lake district of Kern County, California, on a 2,800-acre block of leases. Neither the 9,002-ft. wildcat of Tide Water Associated Oil Co. in Section 30-29s-25e, nor the 4,802-ft. wildcat of Superior Oil Co. in Section 32-29s-25e, was drilled deep enough to reach the Stevens sand, expected to occur at about 10,500 ft.

accumulation. Long Beach Oil Development Co. has either started rig construction or made locations for 12 more wells some of which will get under way in the immediate future. The Wilmington field has produced a total of 66,342,846 bbl. of crude oil since completion of the discovery well a few years ago. If it were not for the necessity of curtailing production to preserve the existing price schedule and maintain an outlet for oil, the Wilmington field would easily have exceeded 100,000,000 bbls. to date.

Strand District

Tide Water Associated Oil Co., in the Strand field of Kern County, completed No. 24-7-E Kern County Land flowing 3,405 bbl. of clean 32.5-gravity oil per day through a 1-in. bean. This well was finished in the Stevens zone at 8,330 ft. and has a 7-in. water string cemented at 8,262 ft. indicating that it is producing from 68 ft. of oil sand. The acreage being developed by Tide Water Associated Oil Co. in the Strand district is a joint undertaking with Continental Oil Co. which leased the acreage and pioneered the district. Tide Water Associated now has two producing wells in the Strand district and is about ready to spud in No. 46-7-E Kern County Land in Section 7-30-26. No. 24-7-E Kern County Land is located west of the discovery well and therefore extends the productive limits west of the initial well.

Shell Oil Co. is expected to complete its first well in the Strand field shortly as it made a formation test late last week on No. 84-12-A Kern County Land in Section 12-30-25 and the well showed plenty of pressure. No. 84-12-A Kern County Land is a joint test of Shell Oil Co. and Ohio Oil Co. and is bottomed in the pay at 8,257 ft. Top of the Stevens oil sand was cored at 8,217 ft. and with a packer set at 8,200 ft. the well showed a natural flow of short duration on the formation test. It is west of both of the flowing wells of Tide Water Associated Oil Co. These joint tests of Tide Water Associated Oil Co. and Continental Oil Co. and by Shell Oil Co. and Ohio Oil Co. are logical steps for development purposes. Neither Continental Oil Co. nor Ohio Oil Co. have marketing facilities in California and hence it has been found advantageous for them to make deals with Tide Water Associated Oil Co. and Shell Oil Co. because the latter do have marketing facilities and for this reason there will be no trouble disposing of current production as well as being assured that development work will be prosecuted with due diligence. No. 24-7-E Kern County Land of Tide Water Associated Oil Co., a current completion in the Strand field, is making 1,980,000 cu. ft. of wet gas along with the crude oil production, but the company is pinching back production to 230 bbl. per day which is the top allowable established by the Central Committee of California Oil Producers.

Wasco District

George F. Getty, Inc., completed its first producing well in the Wasco field of Kern County, No. 1 Jannsen in Section 7-27-24, flowing 3,500 bbl. of 34.6-gravity oil and 1,950,000 cu. ft. of gas per day from the upper part of the productive zone. No. 1 Jannsen was bottomed in the pay at 13,131 ft. and finished with a 6⅝-in. water string cemented at 13,070 ft. Top of the Rio Brabo zone was at 13,089 ft. No. 1 Jannsen is 3 ft. higher structurally than No. 2-A Continental Oil Co., the discovery well which topped the pay at 13,092 ft.

Kettleman North Dome

Kettleman North Dome Association, under supervision of Roy Collom, vice president of Continental Oil Co., put two wells on production in the North dome this week. One was a recompletion which was returned to production flowing 230 bbl. of 35.5-gravity oil and 345,000 cu. ft. of gas per day from 8,900 ft. This well, which was deepened from 8,270 ft. and returned to production flowing through a 2-in. bean, is located in Section 34-21-17 in the Huffman section of the Kettleman North Dome field. It was originally completed November 24, 1934, flowing 7,672 bbl. of 32.8-gravity oil and 6,895,000 cu. ft. of gas daily from 8,270 ft. through four 2-in. beans. Top of the Brown shale was cored at 5,670 ft., top of the Temblor at

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

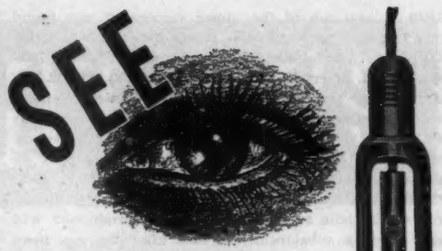
	August 26		August 19			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic—						
Crude oil	65,464	9,352	.....	.....	641,059	633,300
Fuel oil	77,025	11,004	.....	.....	1,470,240	.....
Diesel and gas oil	.....	.....	.....	.....	163,501	.....
Gasoline	154,746	22,107	127,290	18,184	2,432,126	2,388,144
Kerosene	.....	.....	.....	.....	194,850	257,005
Foreign exports—						
Crude oil	423,974	60,568	193,682	27,669	10,385,623	15,989,442
Fuel oil	66,451	9,493	99,339	14,191	5,958,425	5,951,650
Diesel and gas oil	218,424	31,203	143,102	20,443	4,922,893	4,263,113
Gasoline	295,386	42,198	190,544	27,221	5,188,737	5,645,172
Kerosene	.....	.....	19,255	2,751	1,250,985	687,555
Lubricants	.....	.....	.....	.....	86,172	103,127
Coastwise-domestic—						
Crude oil	334,657	47,808	48,539	6,934	8,432,464	8,171,885
Fuel oil	339,447	48,492	202,197	28,885	6,420,206	7,092,419
Diesel and gas oil	60,267	8,610	38,267	5,467	1,512,330	1,048,628
Gasoline	319,195	45,599	410,659	58,666	10,732,109	10,070,482
Kerosene	5,008	715	6,841	977	292,483	155,086

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Fuel oil	.....	.....	.....	.....	124,055	.....
Diesel and gas oil	.....	.....	.....	.....	69,550	178,662
Gasoline	.....	.....	.....	.....	.....	25,409
Kerosene	68,954	9,851	.....	.....	68,954	16,124
Asphalt	.....	.....	.....	.....	353,166	418,700
Lubricants	.....	.....	.....	.....	19,534	16,905
Foreign exports—						
Crude oil	177,534	25,362	94,708	13,530	3,492,349	3,873,909
Fuel oil	153,587	21,941	79,426	11,347	2,022,000	1,615,961
Diesel and gas oil	47,477	6,782	.....	.....	1,822,926	1,967,828
Gasoline	42,299	6,043	.....	.....	2,102,375	3,964,739
Kerosene	.....	.....	.....	.....	384,804	478,292
Asphalt	.....	.....	.....	.....	6,919	56,258
Lubricants	5,497	785	13,445	1,921	423,886	348,861
Other finished oil	.....	.....	117	17	469	.....
Coastwise-domestic—						
Fuel oil	180,212	25,745	146,478	20,925	4,307,595	3,995,156
Diesel and gas oil	60,141	8,592	36,129	5,161	810,177	951,125
Gasoline	217,437	31,062	247,511	35,359	5,323,063	4,996,593
Kerosene	40,123	5,732	24,178	3,454	567,922	320,083

TOTAL TANKER SHIPMENTS FROM CALIFORNIA TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic—						
Crude oil	65,464	9,352	.....	.....	641,059	633,300
Fuel oil	77,025	11,004	.....	.....	1,594,295	.....
Diesel and gas oil	.....	.....	.....	.....	233,051	178,662
Gasoline	154,746	22,107	127,290	18,184	2,432,126	2,413,553
Kerosene	68,954	9,851	.....	.....	263,804	273,129
Asphalt	.....	.....	.....	.....	353,166	418,700
Lubricants	.....	.....	.....	.....	19,534	16,905
Foreign exports—						
Crude oil	601,508	85,930	288,390	41,199	13,877,972	19,863,351
Fuel oil	220,038	31,434	178,765	25,538	7,980,425	7,567,620
Diesel and gas oil	265,901	37,986	143,102	20,443	6,745,819	6,230,941
Gasoline	337,685	48,241	190,544	27,221	7,291,112	9,609,911
Kerosene	.....	.....	19,255	2,751	1,635,789	1,165,847
Asphalt	.....	.....	.....	.....	6,919	56,258
Lubricants	5,497	785	13,445	1,921	510,058	451,988
Other finished oil	.....	.....	117	17	469	.....
Coastwise-domestic—						
Crude oil	334,657	47,808	48,539	6,934	8,432,464	8,171,885
Fuel oil	519,659	74,237	348,675	49,811	10,727,801	11,087,575
Diesel and gas oil	120,408	17,201	74,396	10,628	2,322,507	1,999,753
Gasoline	536,632	76,662	658,170	94,024	16,055,172	15,067,075
Kerosene	45,131	6,447	31,019	4,431	860,405	475,169



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- **SAND BOTTOM** — Used when tools are run and when well is shot to quickly remove loose material.
- **STAR BOTTOM** — Used for cutting the sand loose.
- **CHISEL BOTTOM (In Pump)** — With this bottom tightly packed sand can be easily broken in small pieces so it can be picked up in the pump.

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See Pages 1584-85 COMPOSITE CATALOG

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Circulation Dept. Tulsa, Okla.

6,940 ft. and top of the upper variegated was found at 7,312 ft. The Kettleman North Dome field, which is given a normal ultimate expectancy of about 700,000,000 bbl. of crude oil, has produced 213,589,932 bbl. of crude oil to date under severe restriction. Kenda's second completion in the North dome last week was No. 4-18-Q in the east central part of the structure in Section 18-22-18. It was finished flowing only 75 bbl. of 45.1-gravity oil cutting 5 per cent and 2,057,000 cu. ft. of gas per day from the Temblor with bottom of the hole at 8,295 ft. Crude oil production will later show a substantial increase after the gas head has been reduced. No. 18-Q was finished with an 8⅝-in. water string landed at 6,634 ft. and a blank string of 6⅝-in. cemented at 7,293 ft. and perforated at intervals below this point.

Los Angeles Basin

In the Montebello field of Los Angeles County Kern Oil Co. completed No. 5 Mulholland flowing 708 bbl. of clean 39.2-gravity oil and 4,380,000 cu. ft. of gas per day from the lower La Merced zone at 7,641 ft.

In the Long Beach field, in the Hilldon area, Union Oil Co. recompleted No. 1 Oil Operators, pumping 251 bbl. of 31.9-gravity oil per day after deepening the hole to 4,532 ft. This rejuvenated project was finished with 506 ft. of 6⅝-in. liner including 50 ft. of perforated, landed at 4,529 ft. In the southern end of the Rosecrans field Barnsdall Oil Co. is nearing the depth at which the pay is expected in No. 1 Darling and hence the importance of this area from a production standpoint should be determined soon.

Coastal Area

Shell Oil Co. completed a good well in the Ventura Avenue field this week when No. 101 Taylor in the west end of the structure was finished flowing 300 bbl. of 34.6-gravity oil and 4,850,000 cu. ft. of gas per day from the upper zone with bottom of the hole at 6,950 ft. Tide Water Associated Oil Co. has completed No. 40 V.L.&W. in this field flowing 295 bbl. of 24.5-gravity oil cutting 12 per cent on a compressor from 10,670 ft. after the hole had been plugged back from 10,769 ft. This well, in which the cut may ultimately be reduced, is the most easterly producing well in the Ventura Avenue field and opens up some additional acreage for development to the west.

Rocky Mountain Area

(Continued from Page 90)

eration. Four wells are on top of the pay and are near completions.

Continental Oil Co.'s No. 2-B Schuricht, SE SW SE Section 6-35n-65w, an old Sundance sand well deepened to the Leo sand, flowed 1,672 bbl. in the first 24 hours at 5,282 ft., total depth, from the Leo at 5,182-5,252 ft. The 4½-in. casing is at 5,181 ft. Old total depth was 4,000 ft. It is a north offset to the Minnelusa-Mackinnie No. 1 Thompson, on the west side of the field.

Continental Oil Co.'s No. 4-B Diehlman, SW SW NW Sec. 8-35n-65w. Loc.; (first report).
Ohio Oil Co.'s No. 13 Lamb-Acct. 1, NW SE NE Sec. 5-35n-65w. Rig.; M.I.R.
Continental Oil Co.'s No. 7 Rodeo-4, SW SW NE Sec. 35-36n-65w. R.U.R.
C. L. Price's No. 2 Lamb, SE NW NW Sec. 7-35n-65w. 13-in. 334 ft.; W.O.C.
Argo Oil Co.'s No. 10-A Elliott, SE NW SE Sec. 5-35n-65w. Drlg. 2,165 ft.
Argo Oil Co.'s No. 7 Ford, NW SE NW Sec. 33-36n-65w. Drlg. 1,302 ft.; cmtd. 13-in. at 321 ft.
Continental Oil Co.'s No. 5 Apex-4, NE NE NW Sec. 35-36n-65w. T.D. 4,089 ft.; basal Sundance 4,062-89 ft.; cmtd. 7-in. 4,059 ft.
Continental Oil Co.'s No. 9-B Schuricht, NW SW SE Sec. 6-35n-65. T.D. 5,202 ft.; cmtd. 7-in. 5,155 ft.; W.O.C.
Continental Oil Co.'s No. 4-A Diehlman, SW NE NE Sec. 7-35n-65w. T.D. 5,281 ft.; cmtd. 7-in. 5,271 ft.; W.O.C.; sat. Leo sd. 5,272-81 ft.
A. B. Cobb's No. 4 Novick, SE SE SW Sec. 6-35n-65w. T.D. 5,182 ft.; cmtd. 7-in. 5,175 ft.; W.O.C.
Ohio Oil Co.'s No. 3 Cash-1, SW NW SW Sec. 4-35n-65w. Drlg. 4,685 ft.; T. first Sundance 3,985 ft.; T. r.b. 4,230 ft.

Park County

Stanolind O. & G. Co.'s No. 36 Govt., SE SE NW Sec. 1-47n-100w. T.D. 1,551 ft.; cmtd. 7-in. lnr. at 1,159-1,545 ft.; will perf. and test various sds.

Sublette County

Joe Minton's No. 1 Govt., SE NE NE Sec. 28-27n-113w. Cmtd. 12½-in. at 435 ft. and S.D.; (first report).
Texas Co.'s No. 3-E, NE SW NW Sec. 27-27n-113w. Spdg. 87 ft.
California Co.'s No. 1 Unit 1, C SW NE Sec. 14-31n-109w. T.D. 8,024 ft.; fsg. for tester in fine sd.; S.O.&G. reported.
Wyo. Pet. Corp.'s No. 1 Budd, C NE NE Sec. 10-29n-113w. Drlg. 2,834 ft.
Yellowstone Oil Co.'s No. 1 Budd, C SE SE Sec. 6-30n-112w. Drlg. 880 ft. in L. and shells; will run 10-in. for W.S.O.

Sweetwater County

Sinclair-Wyoming Oil Co.'s No. 85-A, SE SW SE Section 16-26n-90w, Lost Soldier field, was completed at 2,097 ft., total depth, for 100 bbl. per day, natural flow, from the Sundance sand topped at 2,029 ft.

Mountain Fuel Supply Co.'s No. 1 Mosey, NW NW NW Sec. 18-18n-104w. T.D. 402 ft.; ctmd. 13-in. at 267 ft. with 115 sacks.
Wyoming-Calif. Pet. Corp.'s No. 2 Govt., CWL NW SW Sec. 24-17n-104w. R.U.C.T.
Sinclair-Wyoming Oil Co.'s No. 84-A, SW NW NW Sec. 11-26n-90w. Cmtd. 7-in. 1,955 ft.; will standardize; T. Sundance 1,952 ft.

Uinta County

Spring Valley Pet. Co.'s No. 13, CSL SE SE Sec. 22-15n-117w. R.U. to D.D. from 1,716 ft.; O.W.D.D.

Weston County

Dornacher & Neiman's No. 1 Neiman, NW NW NW Sec. 6-47n-64w. Drlg. 300 ft.
Bruce C. Teeters' No. 1 State, SW SW SE Sec. 36-32n-61w. Drlg. 700 ft. in base of Morrison; S.O.W. in Dakota with 12½-in.

MONTANA

Carbon County

R. R. Tarrant's No. 2 McKay, C SE NW Sec. 1-6s-18e. Drlg. 2,990 ft.
Alex Beaton's No. 1, CSL SE SE Sec. 23-6n-23e. Drlg. 1,600 ft. in 8½-in. hole.
V. M. Kirk's No. 1 Robinson, SW SW NW Sec. 2-7s-21e. Drlg. 4,717 ft.
Miracle Oil Co.'s No. 2 Govt., CWL NE SE Sec. 3-6s-23e. T.D. 2,381 ft.; fsg. tools at 1,600 ft.

Glacier County

Cut Bank had three completions and no new operations. A. R. Pardue's No. 3 Tribal-171, NW SE SW Section 7-32n-5w, in the southern part of the field, swabbed 138 bbl. the first 24 hours at 2,836 ft., total depth. It had the upper Cut Bank at 2,785-2,805 ft. and the lower Cut Bank at 2,815-34 ft., the main pay being in the lower sand.

Cobb-Reagen's No. 4 Jackson, SW SW NE Section 5-32n-5w, was drilled to 2,870 ft. and had 1,200 ft. of oil in the hole. The Sunburst was at 2,787-2,808 ft. with a show of oil at 2,795 ft. The Cut Bank was at 2,840-70 ft. with the main pay at 2,860-70 ft. The 7-in. casing was raised 500 ft. off bottom and both sands were shot with 230 qt. Pipe went off of slips and dropped to bottom. All but seven joints have been recovered.

Kistner-Watson's No. 2 Britton, SW SE SE Section 14-34n-6w, swabbed 60 bbl. the first 22 hours at 2,895 ft. from the Cut Bank sand at 2,835-92 ft., the main pay being at 2,875-92 ft.

Texas Co.'s No. 7 Sec. 9 Unit, C SW SW Sec. 9-32n-5w. Drlg. 1,155 ft.; Colo. 615 ft.; 10¾-in. 645 ft.
Huber-Montana Co.'s No. 2 Hinstrager, C NW SW Sec. 24-37n-5w. Drlg. 1,650 ft.; Colo. 440 ft.; 10¾-in. 202 ft.
A. B. Cobb & Co.-Texas Co.'s No. 1 Vasboe, CEL NW SW Sec. 27-37n-5w. Drlg. 1,775 ft.; Colo. 420 ft; 10¾-in. 309 ft.
Texas Co.'s No. 4 Hardwick, C NW SE Sec. 17-32n-5w. Drlg. 945 ft.; Colo. 605 ft.
Glacier Prod. Co.'s No. 1 Bannister, CSL NW NE Sec. 21-33n-5w. Drlg. 2,785 ft.
Glacier Prod. Co.'s No. 2 Hall, C NE SW Sec. 35-36n-6w. T.D. 2,335 ft.; fish rec.; cmtg. caves.

Toole County

Kevin-Sunburst had three completions, one a dry hole, and one new operation.

G. M. Plotke's No. 3 Ward, CWL SW SW Section 28-35n-3w, is pumping 8 to 10 bbl. daily at 1,689 ft. from the contact at 1,687-89 ft.

Prevel & Shay's No. 3 Government, C NW SW Section 11-35n-3w, is pumping 10 bbl. per day, and will acidize later. Total depth is 1,817 ft. The contact at 1,796 ft. was dry. Oil was in a break at 1,815-17 ft.

Fulton Petroleum Co.'s No. 3 Thompson, SE NE NW Section 28-35n-3w, was abandoned at 1,790 ft. after failing to respond to acid.

Big West Oil Co.'s No. 11 Dahlquist, last week erroneously reported flowing 1,000 bbl. per day, is now pumping 50 bbl. per day and showing a little water.

L. J. Yealy's No. 13 Shaw, NE SW SE Sec. 35-36n-2w. Drlg. 510 ft.; (first report).
Big West Oil Co.'s No. 12 Dahlquist, NW NW NE Sec. 21-35n-2w. Drlg. 1,400 ft.; 8¼-in. at 1,140 ft.
Coolidge & Coolidge's No. 1-D State, SW SW NE Sec. 36-36n-2w. Drlg. 1,400 ft.
Italo Pet. Corp.'s No. 1 Cornett, C SW NW Sec. 30-37n-3w. Cmtd. 10¾-in. at 523 ft.; W.O.C.
Morton & Shaw's No. 1 Ellingson, NE NE NW Sec. 23-35n-3w. Drlg. 400 ft.
Nepstad-Montgomery-Fargher's No. 2 Haugen, SE SW SE Sec. 2-35n-3w. Drlg. 1,360 ft.
Mosby Oil Corp.'s No. 2 Peterson, NE NW SE Sec. 7-35n-2w. T.D. 1,680 ft.; S.O.&G. in Sunburst at 1,428-38 ft. and oil in Ellis at 1,674 ft.; will acid.
G. & A. Oil Co.'s No. 14 Goeddertz, NE SE SW Sec. 23-35n-3w. T.D. 890 ft.; set 8¼-in. on bttm.
Le Mac Oil Co.'s No. 1, SW SE SW Sec. 3-34n-4w. Drlg. 780 ft.
Kippen O. & G. Co.'s (formerly Lewiston Synd.) No. 1 Solberg, SE SW NE Sec. 20-35n-3w. Drlg. 1,545 ft.
W. E. Rice Co.'s No. 4 Kearns, Lease 8, C W½ E½ SE Sec. 18-35n-2w. T.D. 1,570 ft.; rng. 6⅝-in.
C. L. Smith, Agt., No. 1 Govt., SW SE NW Sec. 13-35n-2w. T.D. 1,345 ft.; fsg.

Kansas Fields

(Continued from Page 77)

Henderson & Marcus' No. 1-A Smith, NW NW SE Section 8-24-11, Greenwood County wildcat, was a location.

In Barton County: Shell Oil Co.'s No. 1-B Schneider, NW SE NW Section 16-18-15w, was a cellar; same company's No. 5-B Ehrlich, NW NE SW Section 1-16-14w, was rigging up rotary; Sinclair Prairie Oil Co. and others' No. 4 Seyfert, SE SE NW Section 28-16-11w, was rigging up rotary; same operators' No. 3 Prusa, NE NE SE Section 20-16-11w, was building rotary rig.

In Barber County Barbara Oil Co.'s No. 2-B Thompson, C NE Section 16-33-13w, had dug cellar.

Butler County: Adair & Morton's No. 8 Brandt, SE cor. Section 15-28-7, was drilling below 100 ft.; Sinclair Prairie Oil Co.'s No. 9 Millheisler, NE SW NE Section 4-26-5, was a location.

Ellis County: Shell Oil Co.'s No. 24 Rumsey, NW NE NE Section 23-11-17w, was a location.

Ellsworth County: Continental Oil Co.'s No. 3 Buehler, C E½ E½ NE Section 33-17-8w, was rigging up rotary; Mid-Continent Petroleum Corp.'s No. 1 Daugherty, SW SE NW Section 33-17-10w, was building rotary rig.

Greenwood County: H. A. Miller and others' No. 1-B Wygle, NE SE SW Section 12-27-10, was shut down at 150 ft.; Sinclair Prairie Oil Co.'s No. 59 Browning, SW SE NW Section 20-22-10, was moving in machine.

Rice County: Darby Petroleum Corp.'s No. 2-A Oden, C N½ N½ NE Section 6-21-7w, was building rotary rig; Skelly Oil Co.'s No. 1 Smith, C S½ SE NE Section 28-19-10w, was rigging up rotary; Continental Oil Co.'s No. 4-A Pickerill, SE SE NE Section 24-18-8w, was a location.

Russell County: Skelly Oil Co.'s No. 1 Carter, C N½ SE NW Section 33-14-13w, drilled to 300 ft. and was running casing; Hartman & Blair's No. 1 Boxberger, C E½ SE NW Section 14-14-14w, was building rig; Shell Oil Co.'s No. 7 Dumler, NW SE SW Section 36-15-14w, was running casing at 675 ft.

Forest City Basin Activity

ST. JOSEPH, Mo., Sept. 4.—The second wildcat to be started by C. E. King, Houston, Tex., operator, in Clinton County, Missouri sector of the Forest City basin, was spudded at No. 1 Vandereau, SE NE SW Section 18-55-31w. The crew was drilling ahead below 100 ft. in hard lime after setting 15½-in. pipe at 25 ft. H. H. Sherman of Iola, Kans., has the drilling contract. The operator's first Clinton County wildcat in Section 13-55-32, was dry at 1,886 ft.

Mayson Oil Co. was reported drying out hole at No. 1 McGonigle, CNL SE NW Section 20-63-13w, wildcat near Kirksville, Adair County, preparatory to treating with a small amount of acid. If the acid test gives promise, operators plan to treat with a greater amount of gas in an effort to develop commercial production. An oil showing was reported at 1,156-66 ft., and it had been drilled to 1,205 ft. The Trenton formation was topped at 1,163 ft.

Structure has been proven in Andrews County, where two wildcats found approximately 50 ft. of Ste. Genevieve lime, with both reporting showings of oil in that formation. Hyde & Jones' No. 1 Holt, SE NW NE Section 34-60-35w, topped the horizon at 1,485 ft., Mississippi lime 1,549 ft., Kinderhook shale 1,949-80 ft., set 6-in. casing at 2,024 ft., and was shut down because of engine trouble at 2,070 ft. The other Andrews County well, Davis Brothers and others' No. 1 Gee, NW NW SE Section 28-60-35w, topped Ste. Genevieve at 1,480 ft., Mississippi lime 1,549 ft., and was drilling ahead below 1,850 ft.

Work was starting at a test near Falls City, Richardson County, in the Nebraska sector of the basin. It is Pawnee Royalty Co.'s No. 1 Boice, on a 70,000-acre block between Falls City and Salem. Ferndale Drilling Co. of Odessa, Tex., has the contract for a 3,500-ft. test and was moving in material and building standard rig. Drilling was due to start this week. Location was made after an extensive seismograph survey of the block. Another Richardson County test was due to start at Stephens & Uhri's No. 1 Stouffer, SW SW NE Section 22-1n-13e, southeast of Humboldt, where 84-ft. derrick is being moved in.

In the Iowa sector of the basin, Oscar Gruber's No. 1 fee, C SW SE Section 8-67-4w, southeast of Sidney, Fremont County, and north of Atchison County, Missouri, was drilling below 1,020 ft.

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S.T.R.	Depth	Status—
Hogan Pet., No. 1-A Zabala, Casmalia, Santa Barb.	33- 9-34	4,110	dry; abd.
Union Oil, No. 21 Squires, Santa Maria, Santa Bar.	26- 9-34	1,894	sd. sh. drlg.
Sun-Bell Oil, No. 1 Sun, Lompoe, Santa Barbara	29- 8-34	2,060	sd. sh. drlg.
Cole, F. E., No. 19 S.M., Santa Maria, Santa Barbara	29-10-34	5,417	sd. sh. drlg.
Petrol Corp., No. 5-21 Magenheimer, Gato Rg., S.B.	9- 8-32	3,597	hd. sh. drlg.
Richfield Oil Corp., No. 3 Marcos, Sisquoc, S. B.	29- 6-29	1,285	sd. sh. drlg.
Coronet Oil, No. 1, Crown, Ojai, Ventura	17- 4-21	2,298	rig to pump.
St. Louis Oil, No. 1 Williamson, Sespe, Ventura	1- 4-20	2,096	sd. sh. drlg.
Section 20 Oil, No. 21, Sespe, Ventura	20- 5-19	3,898	sd. sh. drlg.
Renard Oil Corp., No. 1 Sespe, Ventura	6- 4-19	180	C.O.
Speik Oil, No. 2 Hill, Sespe, Ventura	33- 5-19	3,966	C.O.
Galveston Oil, No. 1 Basola, Bardsdale, Ventrua	5- 3-19	3,139	idle
K. C. Oil, No. 1 Marr, Santa Susana, Ventura	32- 3-17	286	sd. sh. drlg.
Bolsa Chica Oil, No. 5 Snow, Piru, Ventura	4- 4-18	2,197	sd. sh. drlg.
Continental Oil, No. 12 Grubb, San Miguelito, Vent.	24- 3-24	2,984	sd. sh. drlg.
C. C. M. Oil, No. 5 W.O.G., Padre Canyon, Ventura	23- 3-24	3,196	sd. sh. drlg.
C. C. M. Oil, No. 29-B Hobson, Rincon, Ventura	16- 3-24	1,282	sd. sh. drlg.
Tide Water A. O., No. 40 V.L.W., Vent. Ave., Vent.	25- 3-23	10,670	flow 250 b.d.
Tide Water A. O., No. 42 V.L.W., Vent. Ave., Vent.	23- 3-23	5,998	sd. sh. drlg.
Tide Water A. O., No. 44 V.L.W., Vent. Ave., Vent.	23- 3-23	4,976	sd. sh. drlg.
Tide Water A. O., No. 15 McGonigle, Vent Ave., V.	23- 3-23	6,871	sd. sh. drlg.
Tide Water A. O., No. 16 McGonigle, Vent. Ave., V.	23- 3-23	3,982	sd. sh. drlg.
Tide Water A. O., No. 121 Lloyd, Vent. Ave., Vent.	23- 3-23	6,183	sd. sh. drlg.
Tide Water A. O., No. 123 Lloyd, Vent. Ave., Vent.	23- 3-23	9,065	C.P. 8,683
Shell Oil, No. 101 Taylor, Ventura Avenue, Vent.	29- 3-23	6,950	flow 310 b.d.
Shell Oil, No. 102 Taylor, Ventura Avenue, Vent.	29- 3-23	2,986	sd. sh. drlg.
Shell Oil, No. 34 Edison, Ventura Avenue, Ventura	21- 3-23	7,791	sd. sh. drlg.
General Pet. Corp,. No. 16 Barnard, Vent. Ave., V.	28- 3-23	7,582	sd. sh. drlg.
Cal. Alliance Pet., No. 1 Hartman, Vent. Ave., V.	22- 3-23	3,194	sd. sh. drlg.
Brit. Amer. Pet., No. 8 Hartman, Vent. Ave., Vent.	21- 3-23	8,380	sd. sh. drlg.
Lloyd Corp., No. 3 Dabney, Ventura Ave., Ventura	23- 3-23	7,270	sd. sh. drlg.
Lloyd Corp., No. 4 Dabney, Ventura Ave., Ventura	23- 3-23	6,187	sd. sh. drlg.
Belridge Oil, No. 26-39, North Belridge, Kern	26-27-20	8,275	redrlg. 5,880
Tide Water A. O., No. 24, North Belridge, Kern	21-27-20	5,181	sd. sh. drlg.
O'Reily, Frances, No. 2 Seale, Edison, Kern	5-30-29	2,470	sd. sh. drlg.
Petrex, Inc., No. 2 Metro, Edison, Kern	6-30-29	2,660	sd. sh. drlg.
Marcan Oil, No. 4 Kelley, Round Mountain, Kern	12-28-28	1,809	C.O.
McDonald, H. A., No. 2 Bell, Round Mountain, Kern	12-28-28	1,904	rig to pmp.
Vedder Pet., No. 2 Bell, Round Mountain, Kern	12-28-28	1,815	O.S. drlg.
Kern Valley Drlg., No. 1 Bender, Round Mt., Kern	4-29-29	1,560	gr. sd. drlg.
Morrison, C. S., No. 14 Hobson, Kern River, Kern	2-29-28	405	idle
Dick, W. T., No. 2 Kern, Kern River, Kern	34-28-28	640	O.S. drlg.
Berryman, F. J., No. 1 Kern, Kern River, Kern	27-28-28	465	idle
D. B. K. Co., No. 7 Kern, Kern River, Kern	34-28-28	318	sd. sh. drlg.
D. B. K. Co., No. 8 Kern, Kern River, Kern	34-28-28	420	pmp. 6 b.d.
Sunset Oil, No. 4 Bowles, Mount Poso, Kern	21-26-28	1,581	bailing
Hill and associates, No. 1 West, Mount Poso, Kern	35-26-28	762	C.O.
Dilamar Oil, No. 3 Quinn, Jasmin, Kern	12-25-27	2,902	rig to pmp.
Hogan Pet., No. 4 Peters, Mountain View, Kern	5-31-29	5,503	O.S. drlg.
Texas, No. 2 Jewett, Arvin, Kern	16-31-29	7,750	sd. sh. drlg.
Richfield Oil Corp., No. 1 Mott, Arvin, Kern	9-31-29	6,154	flow 2,340 b.d
Western Gulf Oil, No. 43-B KCL, Fruitvale, Kern	22-29-27	2,141	sd. sh. drlg.
Meridian Pet. Corp., No. 2 Deep Test, Fruitv., Kern	23-29-27	7,570	O.S. drlg.
George F. Getty, Inc., No. 1 Janneson, Wasco, Kern	7-27-24	13,102	O.S. drlg.
Union Oil, No. 4-23 Bowerbank, Goose Lake, Kern	23-29-24	245	sd. sh. drlg.
Union Oil, No. 41-34 KCL, Rio Bravo, Kern	34-28-25	1,564	sd. sh. drlg.
Superior Oil, No. 1 Burner, Rio Bravo, Kern	27-28-25	9,940	sd. sh. drlg.
Standard Oil, No. 1 Ross, Greeley, Kern	20-29-26	10,440	hd. sh. drlg.
Standard Oil, No. 11-18, KCL, Greeley, Kern	18-29-26	11,490	O.S. drlg.
Standard Oil, No. 11-19, KCL, Greeley, Kern	18-29-26	11,495	O.S. drlg.
Standard Oil, No. 12-5, KCL, NW Greeley, Kern	7-29-26	8,140	sd. sh. drlg.
General Pet. Corp., No. 1 Sullivan, NE Greeley, Kern	12-29-26	9,160	hd. sd. drlg.
Continental Oil, No. 2-D, KCL, Bellevue, Kern	14-30-26	12,670	hd. sh. drlg.
Shell Oil, No. 78-20-B, KCL, Ten Section, Kern	20-30-26	8,215	O.S. drlg.
Tide Water A. O., No. 24-7-E, KCL, Strand, Kern	7-30-26	8,330	flow 3,408 b.d.
Shell-Ohio, No. 84-12-A, KCL, Strand, Kern	12-30-25	8,240	sd. sh. drlg.
Ohio Oil, No. 14-E, KCL, Canal, Kern	14-30-25	7,576	sd. sh. drlg.
Shell Oil, No. 32-14-A, KCL, Canal, Kern	14-30-25	6,580	sd. sh. drlg.
Richfield Oil Corp., No. 12-33-A, KCL, Tupman, Kern	33-30-25	9,010	O.S. drlg.
Standard Oil, No. 21-1, KCL, Tupman, Kern	19-30-25	9,977	P.B. 9,880
Richfield Oil Corp., No. 14-3-B, KCL, Cole's Levee, K.	3-31-25	9,640	O.S. drlg.
Richfield Oil Corp., No. 67-4-B, KCL, Cole's Levee, K.	4-31-25	7,070	sd. sh. drlg.
Standard Oil, No. 20-2, KCL, Cole's Levee, Kern	9-31-25	5,998	sd. sh. drlg.
Ohio Oil, No. 4-F, KCL, Cole's Levee, Kern	11-31-25	5,371	redrlg. 3,990
Tide Water A. O., No. 81, KCL, Cole's Levee, Kern	14-31-25	9,460	sd. sh. drlg.
Union Oil, No. 58-11, KCL, Cole's Levee, Kern	11-31-25	2,994	sd. sh. drlg.
Gibson Oil, No. 6 O'Brien, Midway-Sunset, Kern	6-11-23	3,275	P.B. 2,940
Bihl, J. U., No. 2-A Sunset, Midway-Sunset, Kern	7-11-23	2,302	P.B. 2,138
Oxford Oil, No. 5 Monticello, Midway-Sunset, Kern	27-31-22	1,515	pmp. 60 b.d.
Baker & Sonne, No. 1 Leyse, Midway-Sunset, Kern	20-32-23	214	sd. sh. drlg.
Quality Oil, No. 6 W.P., Midway-Sunset, Kern	27-32-23	1,993	O.S. drlg.
Texas, No. 34 Sunset, Midway-Sunset, Kern	32-32-24	3,268	O.S. drlg.
Merritt-Annex Oil, No. 8 Fried, Midway-Sunset, Kern	25-12-24	287	sd. sh. drlg.
General Pet. Corp., No. 1 B.V.A., Midway-Sunset, K.	1-31-24	8,394	sd. sh. drlg.
National Oil, No. 33 Sunset, Midway-Sunset, Kern	35-32-23	2,409	br. sh. drlg.
Western Gulf Oil Corp., No. 1 Panhandle, B.V.L., K.	3-32-26	10,178	flow 1,100 b.d.
Richfield Oil Corp., No. 1 KCL, Wheeler Ridge, Kern	28-11-20	11,140	sd. sh. drlg.
Continental Oil, No. 1-F, KCL, San Emidio, Kern	5-10-21	7,903	hd. sh. drlg.
Bannow, L. E., No. 1 Irwin, San Emidio, Kern	15-10-23	2,040	idle
Shell Oil, No. 52-2-13-A, KCL, San Emidio, Kern	13-11-22	10,285	sd. sh. drlg.
French, R. C., No. 1 Roval, San Emidio, Kern	5-10-21	718	sd. sh. drlg.
Superior Oil, No. 1 S.P.L., Turk, Fresno	15-18-16	11,450	dry; abd.
Richfield Oil Corp., No. 1 Gulf, Cantua, Fresno	4-17-15	8,290	sd. sh. drlg.
Italo Pet. Corp., No. 5 Penn, West Coalinga, Fresno	1-20-14	1,220	rig to pmp.
Wilcox, J. F., No. 7 Coalinga, West Coalinga, Fresno	11-20-14	490	sd. sh. drlg.
Union Oil, No. 86-18 Cook, NE Coalinga, Fresno	18-19-16	8,240	completing
Bandini Pet., No. 48-18 Webb, NE Coalinga, Fresno	18-19-16	8,093	fish D.P.
Standard Oil, No. 73-19-B fee, NE Coalinga, Fresno	19-19-16	7,900	sd. sh. drlg.
Amerada Pet. Corp., No. 5-17 S.P.L., NE Coalinga, F.	17-19-16	6,581	sd. sh. drlg.
Wilshire Annex Oil, No. 1 Kearns, Central, Coal., F.	30-19-16	6,365	sd. sh. drlg.
Lytle, R. S., agt., No. 86-7-F, SE Coalinga, Fresno	7-20-16	7,720	sd. sh. drlg.
Lytle, R. S., agt., No. 7-18-F, SE Coalinga, Fresno	18-20-16	7,727	O.S. drlg.
Lytle, R. S., agt., No. 33-18-F, SE Coalinga, Fresno	18-20-16	7,592	flow 3,460 b.d.
Texas, No. 3 Exeter fee, SE Coalinga, Fresno	6-20-16	617	sd. sh. drlg.
Standard Oil, No. 62-13-C fee, SE Coalinga, Fresno	13-20-15	5,060	sd. sh. drlg.
Standard Oil, No. 86-13 fee, SE Coalinga, Fresno	13-20-15	6,583	sd. sh. drlg.
Superior Oil, No. 5 fee, SE Coalinga, Fresno	7-20-16	4,988	sd. sh. drlg.
Superior Oil, No. 3 Cagle, SE Coalinga, Fresno	6-20-16	5,994	sd. sh. drlg.
Parkford, E. A., No. 1 Valley, SE Coalinga, Fresno	24-20-15	6,594	sd. sh. drlg.
K. N. D. A., No. 4-18-Q, Kettleman North, Kings	18-22-18	8,295	flow 100 b.d.
K. N. D. A., No. 54-20-Q, Kettleman North, Kings	29-22-18	6,990	sd. sh. drlg.
K. N. D. A., No. 4-22-Q, Kettleman North, Kings	22-22-18	8,060	completing
K. N. D. A., No. 25-22-Q, Kettleman North, Kings	22-22-18	2,981	sd. sh. drlg.
K. N. D. A., No. 47-22-Q, Kettleman North, Kings	22-22-18	7,490	sd. sh. drlg.
K. N. D. A., No. 25-26-Q, Kettleman North, Kings	26-22-18	6,060	br. sh. drlg.
Standard Oil, No. 2-19-J, Kettleman North, Fresno	19-21-17	9,300	sd. sh. drlg.
Standard Oil, No. 27-19-J, Kettleman North, Fresno	19-21-17	8,840	P.B. 8,149
Standard Oil, No. 27-7-Q, Kettleman North, Kings	7-22-18	6,850	br. sh. drlg.
Standard Oil, No. 43-7-Q, Kettleman North, Kings	7-22-18	4,986	sd. sh. drlg.
Standard Oil, No. 63-17-Q, Kettleman North, Kings	17-22-18	7,565	cmtd. 7,229
Standard Oil, No. 85-17-Q, Kettleman North, Kings	17-22-18	7,545	sd. sh. drlg.
Standard Oil, No. 63-21-Q, Kettleman North, Kings	21-22-18	8,190	completing
Standard Oil, No. 85-21-Q, Kettleman North, Kings	21-22-18	5,080	sd. sh. drlg.
Standard Oil, No. 61-27-Q, Kettleman North, Kings	27-22-18	6,990	br. sh. drlg.
Graphic Oil, No. 1 Taylor, Dudley Ridge, Kings	34-23-20	3,260	sd. sh. drlg.
Newton, S. M., No. 1 Stafford, Panorama, San Luis O.	18-31-21	3,935	sd. sh. drlg.
Cal. Expl., No. 1 Irons, Cuyma, San Luis Obispo	19-10-24	2,440	sd. sh. drlg.
Texas, No. 3 Eureka, Eureka, Humboldt	21- 3- 1	3,906	form. test
Silver Creek Oil, No. 1 Los Pinos, San Benito	11-17-11	252	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well, location, and county—	S.T.R.	Depth	Status—
Bren Oil, No. 1 Sepulveda, Torrance, Los Angeles	30- 4-13	5,372	idle
O'Donnell, J. E., No. 73 Lomita, Torrance, Los Ang.	30- 4-13	5,259	O.S. drlg.
Union Oil, No. 12 Carson, Dominguez, Los Angeles	33- 3-13	6,360	sd. sh. drlg.
Shell Oil, No. 99 Reyes, Dominguez, Los Angeles	33- 3-13	7,840	flow 1,397 b.d.
Shell Oil, No. 33-A Reyes, Dominguez, Los Angeles	33- 3-13	2,467	sd. sh. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Acd., acidized.
B.O., barrels of oil.
B.P.D., barrels per day.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
B. ck., bottom choke.
Br. sh., brown shale.
B.S., basic sediment.
C.&P., cellar and pits.
Cd. or Crd., cored.
C.D., correct depth.
Cg., coring.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem
D.S.T., drill-stem test
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravky.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging back.
P.B.P., pulling or pulled big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Recvd., recovered.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtrk. or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.O., or S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T. ck., top choke.
T.P., tubing pressure.
Tr., tract.
Tstd., tested.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.O.O., waiting for orders.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.R. or W.O.S.R., awaiting standard rig.
Wtr., water

Union Oil, No. 34 Rosecrans, Rosecrans, Los Angel.	19-	3-13	7,871	O.S. drlg.
Barnsdall Oil, No. 1 Darling, Rosecrans, Los Angel.	20-	3-13	7,191	sd. sh. drlg.
King & Weymouth, No. 3 Averill, Rosecrans, L. A.	20-	3-13	4,665	sd. sh. drlg.
South Cal. Pet. Corp., No. 1 Slabaugh, Rose.., L. A.	19-	3-13	6,890	redrlg. 6,550
Basin Oil, No. 1 Beloil, Potrero, Los Angeles	28-	2-14	5,450	redrlg. 5,132
Vulcan Oil, No. 1 Corner, Playa Del Rey, Los Angel.	22-	2-15	5,561	sd. sh, drlg.
Texas, No. 1 Extension, Playa Del Rey, Los Angeles	34-	2-15	6,673	dry; abd.
Tide Water A. O., No. 12 Porter, Aliso Canyon, L. A.	27-	3-16	955	sd. sh. drlg.
Tide Water A. O., No. 11 Fernando, Aliso Can., L. A.	27-	3-16	1,990	hd. sd. drlg.
Redwood Oil, No. 1-A Mitchell, Mint Canyon, L. A.	22-	4-15	130	sd. sh. drlg.
Barnsdall Oil, No. 6 R.S.F., Newhall, Los Angeles	27-	4-17	6,550	tested wet
General Pet. Corp., No. 13 S.P., Wilmington, L. A.	2-	5-13	1,984	sd. sh. drlg.
Dumm Bros. Pet., No. 2 Harbor, Wilmington, L. A.	35-	4-13	3,444	flow 160 b.d.
Dolley, C. F., No. 1 Harbor, Wilmington, Los Angel.	35-	4-13	5,718	completing
Gremac Oil, No. 2 Harbor, Wilmington, Los Angel.	4-	5-13	3,540	O.S. drlg.
Hancock Oil, No. 23-A Harbor, Wilmington, Los A.	2-	5-13	4,055	completing
Long Beach Dev., No. 1-W Harbor, Wilmington, L.A.	3-	5-13	3,820	flow 410 b.d.
Long Beach Dev., No. 2-W Harbor, Wilmington, L.A.	3-	5-13	3,900	flow 290 b.d.
L. A. Basin Drlg., No. 1 Harbor, Wilmington, L. A.	33-	4-13	3,586	completing
Royalty Service Corp., No. 3 Packard, Wilmin., L. A.	35-	4-13	3,615	C.O.
Royalty Service Corp., No. 15-7-1 Harbor., Wil., L. A.	35-	4-13	3,650	pmp. 148 b.d.
Royalty Service Corp., No. 1-B Santa Fe, Wil., L. A.	35-	4-13	5,713	O.S. drlg.
Signal O. & G., No. 3-S.P., Wilmington, Los Angeles	3-	5-13	1,874	sd. sh. drlg.
Signal O. & G., No. 5-S.P., Wilmington, Los Angeles	3-	5-13	4,163	flow 930 b.d.
Signal O. & G., No. 4-U.P., Wilmington, Los Angeles	3-	5-13	4,050	flow 470 b.d.
Union Pacific R. R., No. 113, Wilmington, Los Ang.	34-	4-13	3,701	P.B. 3,633
Union Pacific R. R., No. 114, Wilmington, Los Ang.	10-	5-13	3,945	C.O.
Union Pacific R. R., No. 115, Wilmington, Los Ang.	3-	5-13	3,832	completing
Union Pacific R. R., No. 116, Wilmington, Los Ang.	3-	5-13	3,940	sd. sh. drlg.
Wilton Oil, No. 9 Harbor, Wilmington, Los Angeles	32-	4-13	5,737	testing
Kern Oil, No. 24 Monterey, Montebello, Los Angeles	2-	2-12	6,891	sd. sh. drlg.
Kern Oil, No. 32 Monterey, Montebello, Los Angeles	2-	2-12	6,775	tested wet
Kern Oil, No. 33 Monterey, Montebello, Los Anegeles	2-	2-12	7,730	flow 1,120 b.d.
Kern Oil, No. 5 Mulholland, Montebello, Los Angeles	2-	2-12	7,641	flow 705 b.d.
Kern Oil, No. 3 Taylor, Montebello, Los Angeles	2-	2-12	7,600	O.S. drlg.
Standard Oil, No. 6 Braun, Montebello, Los Angeles	3-	2-12	7,530	O.S. drlg.
Standard Oil, No. 7 Braun, Montebello, Los Angeles	2-	2-12	7,240	sd. sh. drlg.
Standard Oil, No. 8 Braun, Montebello, Los Angeles	3-	2-12	6,861	sd. sh. drlg.
Standard Oil, No. 7 Whitehead, Montebello, Los An.	3-	2-12	7,680	O.S. drlg.
Standard Oil, No. 8 Whitehead, Montebello, Los An.	3-	2-12	7,252	sd. sh. drlg.
Union Oil, No. 5 Wilcox, Montebello, Los Angeles	11-	2-12	7,470	O.S. drlg.
Union Oil, No. 7 Wilcox, Montebello, Los Angeles	2-	2-12	2,934	sd. sh. drlg.
Union Oil, No. 5 Howard & Smith, Montebello, L. A.	2-	2-12	7,615	flow 920 b.d.
Union Oil, No. 7 Howard & Smith, Montebello, L. A.	2-	2-12	7,420	C.O.
Union Oil, No. 8 Howard & Smith, Montebello, L. A.	11-	2-12	7,390	O.S. drlg.
Union Oil, No. 3 Calkins, Montebello, Los Angeles	2-	2-12	7,645	completing
Union Oil, No. 6 Paul Howard, Montebello, Los Ang.	11-	2-12	7,420	sd. sh. drlg.
Albertson Oil, No. 1 Schnakenburg, Montebello, L. A.	3-	2-12	4,161	sd. sh. drlg.
Graham-Loftus Oil Corp., No. 1 So. Montebello, L. A.	11-	2-12	7,633	completing
B-A Oil Prod., No. 1 Parmalee, Montebello, Los An.	11-	2-12	7,270	sd. sh. drlg.
B-A Oil Prod., No. 1 H. & S., Montebello, Los Angeles	2-	2-12	5,850	sd. sh. drlg.
B-A Oil Prod., No. 2 H. & S., Montebello, Los Angeles	2-	2-12	4,562	sd. sh. drlg.
Hathaway Oil, No. 2 Dore, Montebello, Los Angeles	11-	2-12	6,170	sd. sh. drlg.
McVicar & Rood, No. 1 Beech, Montebello, Los Ang.	11-	2-12	7,530	tested wet
McVicar & Rood, No. 1 Matson, Montebello, Los An.	11-	2-12	7,538	O.S. drlg.
McVicar & Rood, No. 4 Manz, Montebello, Los Angel.	2-	2-12	5,376	sd. sh. drlg.
Pongratz Pet., No. 1 Martin, Montebello, Los Angeles	2-	2-12	7,640	flow 1,075 b.d.
Montebello Res. Oil, No. 1 Reservoir, Monteb., L. A.	2-	2-12	7,360	sd. sh. drlg.
Mont. Oil, No. 1 Nordon, Montebello, Los Angeles	2-	2-12	1,940	cmtd. 734
Fullerton Oil, No. 2 Trustee, Montebello, Los Ange.	12-	2-12	139	sd. sh. drlg.
Fullerton Oil, No. 1 Scott, Montebello, Los Angeles	1-	2-12	7,625	flow 725 b.d.
Ring Oil, No. 1 Paden, Montebello, Los Angeles	2-	2-12	7,030	sd. sh. drlg.
Pueblo Oil, No. 1 Bird, Montebello, Los Angeles	11-	2-12	7,450	O.S. drlg.
Texas, No. 1 Wilcox, Montebello, Los Angeles	3-	2-12	2,466	sd. sh. drlg.
McKeon, John, No. 1 Travis, Montebello, Los Angel.	1-	2-12	3,998	sd. sh. drlg.
Mission Oil Corp., No. 1 Marcotte, Montebello, L. A.	11-	2-12	7,470	O.S. drlg.
Star Pet., No. 1 Community, Montebello, Los Angel.	2-	2-12	3,083	sd. sh. drlg.
Caminol, No. 1-15 Cowan, Montebello, Los Angeles	2-	2-12	7,639	flow 650 b.d.
C. A. P. Oil, No. 1 Dutch, Montebello, Los Angeles	11-	2-12	4,500	redrlg. 4,361
Crail Bros., No. 1 Cowan, Montebello, Los Angeles	1-	2-12	7,250	sd. sh. drlg.
East Mont. Oil, No. 2 Rissinger, Montebello, Los A.	2-	2-12	3,996	sd. sh. drlg.
Wood-Calahan Oil, No. 1 Todd, Montebello, Los An.	2-	2-12	7,630	O.S. drlg.
Bush Oil, No. 1 Alauzet, Montebello, Los Angeles	3-	2-12	7,670	completing
Bush Oil, No. 2 Olds, Montebello, Los Angeles	3-	2-12	6,174	sd. sh. drlg.
Herley-Kelly, Inc., No. 1 De Staute, Montebello, L. A.	2-	2-12	7,531	tested wet
Sunset Oil, No. 1 Howell, Montebello, Los Angeles	2-	2-12	4,367	sd. sh. drlg.
York Oil, No. 1 Long, Montebello, Los Angeles	3-	2-12	3,697	sd. sh. drlg.
York Oil, No. 1 Lehman, Montebello, Los Angeles	3-	2-12	2,141	sd. sh. drlg.
United Mont. Oil, No. 1 Lot, Montebello, Los Angeles	10-	2-12	5,580	sd. sh. drlg.
Kelso, F. W., No. 1 Brea, Puente Hills, Los Angeles	13-	2-10	2,188	flow wtr.
Union Oil, No. 1 Operators, Long Beach, Los Angeles	13-	4-13	4,532	rig to pmp.
Richfield Oil Corp., No. 8-B City, Long Beach, L. A.	28-	4-12	1,977	cmtd. 613
Two & One Oil, No. 3 Signal, Long Beach, Los Ang.	18-	4-12	5,775	P.B. 5,530
Dormax Oil, No. 1 Signal, Long Beach, Los Angeles	30-	4-12	5,660	sd. sh. drlg.
Rolling Hills Pet., No. 1 Weston, Palos Verdes, L. A.	27-	4-14	6,070	sd. sh. drlg.
Traders Oil, No. 1 Wagner, Richfield, Los Angeles	22-	3- 9	4,771	P.B. 3,650
Exeter Oil, No. 1 Stern, East Coyote, Orange	22-	3-10	4,592	gr. sd. drlg.
Southwest Expl., No. 21 State, Hunt. Beach, Orange	10-	6-11	2,090	cmtd. 755
Eyer & Peters, No. 1 Newland, Hunt. Beach, Orange	12-	6-11	3,750	idle
Sherin Oil, No. 4 Farnsworth, Hunt. Beach, Orange	34-	5-11	3,600	C.O.
Island View Oil, No. 1 North, Hunt. Beach, Orange	35-	5-11	3,794	sd. sh. drlg.

OKLAHOMA

Week Ending September 2

NORTHERN OKLAHOMA

Alfalfa County

F. W. Dye et al No. 1 Belter, C SE Sec. 32-28-10w. K.C. 4,515 ft.; Miss. 5,060 ft.; Simp. 5,628 ft.; Wlx. 5,700-21 ft.; 2nd Wlx. 5,745-90 ft., T.D.; D.&A.

Atoka County

Giblett No. 1 Rich, SE SE SW Sec. 3-1-12. S.D. 728 ft.

Caddo County

Sinclair Prairie Oil Co. No. 1 Gorman, SW NW NW Sec. 1-16-13w. Drlg. 6,176 ft.

Canadian County

W. R. Ramsey's No. 1 Mansfield, C NW NE Sec. 16-14-9w. W.O.C. 520 ft.

Cleveland County

Nels Burton No. 1 Boggs, NE NE SE Sec. 16-9-2w. 2nd Wlx. 7,585 ft.; T.D. 7,646 ft.; P.B. 7,473 ft.; swbd. 30 B.O. and 40 B.W. in 24 hrs.

Nels-Burrton No. 1 Hirsch, NW NW NE Sec. 17-9-2w O.W.P.B.; O.T.D. 7,602 ft.; T.D. 7,695 ft.; swbd. 250 B.F. in 24 hrs.; 10% B.S.

Sinclair-Prairie No. 1 Ward, SE SE SE Sec. 30-7-1. Hntn. 6,185 ft.; Vla. 6,408 ft.; cd. 6,527-45 ft.; rec. 3 ft. L.

Comanche County

Mid Night Oil No. 1 Howe, NW NW NE Sec. 30-2-13w. O.W.D.D.; O.T.D. 703 ft.; T.D. 894 ft.; drlg. by tools 888 ft.

Creek County

Selby O. & G. Co. No. 1 Moore, SE NE SW Sec. 36-16-7. Vla. 3,746 ft.; cg. 3,760 ft.

Sunray Oil Co. No. 1 Harris, SW SW NE Sec. 30-14-7. T.D. 2,927 ft.; est. 370,000 cu. ft. gas.

Garfield County

Keriyn Oil Co. No. 1 Hein, NW NW NW Sec. 36-22-4w. T.D. 5,042 ft.; S. D.O.

Greer County

C. S. Amos No. 1 Banks, C NW SW Sec. 21-7-22w. Drlg. 1,070 ft.

Hughes County

Carter Oil No. 1 Hamilton, C W½ NE SW Sec. 33-4-9. T.D. 4,225 ft., S.D.

Jefferson County

H. M. Weir No. 1 Carmichael, NE NE SW Sec. 23-7s-7w. Drlg. 3,525 ft.

Kay County

Cells & Rutherford No. 1 Wolfenbarger, Sec. 9-27-4. Drlg. 950 ft.

W. C. McBride No. 1-A State, SW NE NE Sec. 13-29-2w. Drlg. 3,325 ft.

E. W. Marland No. 1 Crook, SW SW SE Sec. 21-26-3. S.D. 1,241 ft.; repairs.

Kingfisher County

Anderson-Prichard No. 1 Geis, C NE SW Sec. 15-18-9w. Lytn. 6,450-6,510 ft.; drlg. 7,156 ft.

Ace Gutowsky No. 1 Lankford, NE NE SE Sec. 34-17-6w. Miss. 7,014 ft.; Woodford 7,531 ft.; Msnr. 7,562 ft.; Wlx. 8,105 ft.; 2nd Wlx. 8,275 ft.; T.D. 8,330 ft.; S.D.O.

Kiowa County

Bollen-Dillard & Roberts No. 1 Holcomb, NE NE SW Sec. 25-7-19w. Drlg. 1,900 ft.

Hagerling et al No. 1 Bozeman, SE SE NE Sec. 14-5-18w. Drlg. 1,286 ft.

C. J. Hagerling No. 1 Kimray, SW SW NW Sec. 36-5-18w. Drlg. 1,430 ft.

Lewis & Meyers No. 1 Ford, NE NE SE Sec. 14-7-18w. T.D. 1,785 ft.; D.&A.

Lincoln County

Black Gold No. 1 Locquchment, NE NE NE Sec. 28-14-6. T.D. 3,175 ft.; est. 5 B.O.P.D.; S.D.

W. A. Villines No. 1 Marshall, NW NE NE Sec. 28-15-4. T.D. 5,080 ft.; S.D.

McIntosh County

W. B. Pine No. 1 Marlin, C N½ SE NE Sec. 14-11-16. Drlg. below 1,100 ft.

Scruggs et al's No. 1 Lanning, SE SW SW Sec. 19-12-15. Drlg. 440 ft.

Noble County

J. E. Crosbie No. 1 Robbins, SW SW NW Sec. 6-22-2w. S.O. 3,261-64 ft.; drlg. 4,197 ft.

Franks & Ellis' No. 1 Stranka, SW SW NW Sec. 35-24-1w. S.D. 725 ft.

Okfuskee County

Sands Pet. No. 1 Mathews, C W½ NW SE Sec. 5-11-9. Cg. 3,993 ft.

Oklahoma County

Hall & Briscoe No. 1 Thompson, SW SW NE Sec. 28-13-1. Drlg. 4,580 ft.

Westcott & Nagle No. 1 Kramer, NE NE NE Sec. 17-12-1w. Dolo. 6,483 ft.; drlg. 6,570 ft.

Osage County

Midco Oil Co.'s No. 1 Osage, NE NE SW Sec. 17-22-8. Drlg. 1,190 ft.

Pawnee County

Ed Kelly No. 1 Hill, SW SW SE Sec. 1-21-5. Drlg. 3,040 ft.

Payne County

Blackwell O. & G.'s No. 1 Davis, SE SE SE Sec. 24-18-1. Drlg. 3,291 ft.

C. R. Hoagland No. 1 Stanolind, SE SE SW Sec. 27-18-4. Miss. 3,800 ft.; drlg. 3,885 ft.

Pontotoc County

Grisso Royalty and Eason Oil No. 1 Haskins, SE SW SW Sec. 27-5-4. T.D. 2,639 ft.; swbd. down and filled 800 ft. O.I.H., 24 hrs.

Smith & Bruson No. 1 Kann, SE SE NE Sec. 13-3-4. S.D. 452 ft.

Simpson-Roodhouse's No. 1 McKay, SW SW NE Sec. 1-2-7. C.&P.

Pottawatomie County

F. W. Cooper No. 1 Strawn, SE SE SW Sec. 32-8-5. T.D. 4,411 ft.; S.D.

Kirk-Greenway et al No. 1 Boland, SE NE NW Sec. 28-11-3. Dolo. 5,820 ft.; Wlx. 5,853 ft.; T.D. 5,905 ft.; N.S.; D.&A.

Neustadt et al No. 1 Howeth, NE SE NE Sec. 14-6-4. Sd. and S.S.O. 3,455-60 ft.; S.D. 5,060 ft.

Yorkan Prod. No. 1 Hoffman, NW NW NW Sec. 26-11-3. Wdfd. 5,360 ft.; Hntn. 5,445 ft.; T.D. 5,805 ft.; D.&A.

Sequoyah County

Thompson Bros. No. 1 Ruby, NW NW NE Sec. 30-12-22. Hntn. 1,451 ft.; T.D. 1,912 ft. (cor.); S.D.

Seminole County

Flynn et al No. 1 Work, NE SE SE Sec. 19-8-7. Wlx. 4,276-92 ft.; set pipe.

Washita County

Continental Oil Co. No. 1 Proctor, C NW Sec. 28-10-20w. T.D. 14,479 ft.; fsg.

L. B. McWhirter No. 1 fee, NW SW SW Sec. 34-8-19w. T.D. 2,250 ft.; S.D.

SOUTHERN OKLAHOMA

Carter County

Pure Oil Co. No. 1 Noble, NE SE Sec. 35-3s-1e. T.D. 8,500 ft.; P.B. 6,530 ft.; tstd. wtr. at 6,319 ft.; tstd. Hntn. 4,633-4,737 ft.; set plug 4,454 ft.; ran 4,362 ft. of tbg. and S.D.

Choctaw County

Letchfield & Kirksly No. 1 Schuester, SW SE SW Sec. 13-6s-14. Drlg. 1,105 ft.

Clyde Ross et al No. 1 Hardy, SE SE NW Sec. 21-7s-15. T.D. 1,634 ft.; H.F. W.; S.D.

Cotton County

Dean Bros.' No. 1 Emery, NE NE NE Sec. 30-3s-13w. Drlg. 1,985 ft.

Love County

Neff et al's No. 1 Brahma, NW NW SW Sec. 35-6s-2e. T.D. 193 ft.; R.U.R.

Marshall County

Hughes et al No. 1 Vittitto, C NE SE Sec. 11-5s-4e. O.W.D.D.; O.T.D. 7,100 ft.; T.D. 7,110 ft.; S.D.

Johnson et al No. 1 Godfrey, SW SE NE Sec. 14-6s-6e. Spd.

Tillman County

Oil Inv. No. 2 Hammell, NE NW NW Sec. 6-5s-15w. O.W.D.D.; O.T.D. 2,829 ft.; T.D. 3,353 ft.; S.D.

KANSAS

Week Ending September 2. (Descriptions are East unless marked otherwise)

Barton County

Bradley Oil Co.'s No. 1 Dolecheck, CEL SE NW Sec. 26-16-12w. Drlg. 2,845 ft.

W. H. Brinn No. 1 Dirks, CWL SW NE Sec. 31-18-15w. Lans. 3,280 ft.; drlg. 3,440 ft.

Crown Pet. Co. No. 1 Marchand, NE SE NW Sec. 13-20-1w. Drlg. 2,910 ft.

Crown Pet. Co. No. 1 Schartz, SE SE NW Sec. 12-20-12w. Drlg. 2,940 ft.

R. E. Day et al No. 1 Feltes, SE SE NE Sec. 14-16-12w. O.W.D.D. O.T.D. 1,875 ft.; T.D. 3,574 ft.; S. 13 B.O.P.H.

Simpson Oil et al's No. 1 Brown, CWL NW SE Sec. 31-20-12w. Drlg. 1,650 ft.

Butler County

Adair & Morton No. 1 Jones, CWL NW NW Sec. 29-28-7. Miss. 2,787 ft.; drlg. 2,807 ft.

Carey & Jennings No. 1 Kelly, C SW Sec. 20-27-4. S.D. 2,660 ft.

Cromwell & Lewis No. 1 Stern, NW NW NW Sec. 27-27-6e. M.I.M.

Crown Pet.'s No. 1 Manny, NW NW NE Sec. 33-28-5. Drlg. 1,770 ft.

Maryiyn Oil et al No. 1-A Hoard, SW NE NE Sec. 28-29-8. S.D. 1,265 ft.

Rex & Morris' No. 4 McKaig, SW NW NE Sec. 24-28-6. Drlg. 1,900 ft.

Simpson & Noble et al's No. 1 Marsh, NW NW SW Sec. 23-28-6. S.D. 1,710 ft.

Colley County

Sackrider et al No. 1 Allen, SE NE SE Sec. 13-21-15. T.D. 1,929 ft.; C.O. 1,600 ft.; S.D.

Comanche County

Kerr-Lynn et al No. 1 McMoran, C SE NW Sec. 25-34-16w. Miss. 5,000 ft.; Vla. 5,410 ft.; Simp. dolo. 5,590 ft.; Arb. 5,764 ft.; T.D. 5,808 ft.; N.S.; D.&A.

Cowley County

J. R. Lowell et al No. 1 Olsen, NE NE SE Sec. 13-35-7. S.S.O. 2,834-38 ft.; H. F.W. 3,060 ft.; rng. 6-in.

Wakefield & Blair No. 1 Starkey, SE SE NE Sec. 32-30-4. Drlg. 2,140 ft.

Western Kans. O. & R. Co. No. 1 Gregory, SE SE NW Sec. 2-34-6. Drlg. 2,536 ft.

Dickinson County

Franks et al No. 1 Huffman, NW NW SW Sec. 11-13-1. Hntn. 2,807 ft.; Vla. 3,048-55 ft.; S.S.O. 3,156-65 ft.; T.D. 3,170 ft.; set 5-in. 3,125 ft. and S.D.

Douglas County

Three Star Oil Co. No. 1 Griffith, C NW SE Sec. 4-14-8e. Miss. 1,525 ft.; drlg. 2,020 ft.

Ellis County

Helmerich & Payne's No. 1 Simpson, NE NE SE Sec. 3-11-17w. Tpk. 2,857 ft.; Lans. 3,142 ft.; drlg. 3,405 ft.

Ellsworth County

Central Pet. et al's No. 1 Schepmann,

CSL SW NW Sec. 27-17-10w. Lans. 2,987 ft.; Arb. 3,321 ft.; S.O. 3,323 ft.
I. W. Murfin No. 1 Zajic, C SL SW NE Sec. 31-16-10w. Tpka. 2,676 ft.; S.S.O. 3,195 ft.; Arb. 3,348 ft.; H.F.W. 3,372-76 ft., T.D.; D.&A.

Franklin County

Security O. & G. Co. No. 1 Teall, C SW NW Sec. 11-17-17. Drlg. 475 ft.

Johnson County

F. O. McCain et al No. 1 Lyons, NW SW NE Sec. 27-13-22. S.D. 345 ft.

Kingman County

Skelly Oil Co. No. 1 Miller, CSL N½ NE Sec. 31-27-10w. Set 7-in. 4,067 ft.; R.U. S.T.

Kiowa County

Sinclair Prairie No. 1 Price, NW NW SW Sec. 22-28-20w. Miss. 4,910 ft.; Arb. 5,538 ft.; T.D. 5,800 ft.; drld. cmt. 4,940 ft.; perf.; swbd. 1 B.F.P.H.

McPherson County

H. C. Bennett No. 1 Peterson, CSL NW NW Sec. 32-20-5w. Miss. 3,350 ft.; S.O.

Miami County

Dave Judd No. 1 Waite, CNL SW SE Sec. 4-15-25. S.D. 732 ft.
Joe Wellinbring et al's No. 1 Ramey, NW NW SW Sec. 17-15-23. Drlg. 805 ft.

Montgomery County

Lerke & Whortan No. 1 Clemmer, C SW SW Sec. 21-32-15. Arb. 1,530 ft.; set 5-in. csg.; W.O.C.

Osage County

J. M. Edwards No. 1 Detrick (O.W.D.D.), C NW SE Sec. 21-14-15. O.T.D. 1,200 ft.; S.G. in sh. 1,618-24 ft.; S.D. 1,650 ft.

Pawnee County

Cities Service's No. 1 Robert, C SE Sec. 31-21-15w. Cd. 3,926-36 ft.; rec. S.S.O.

Pratt County

Atlantic Ref. Co. No. 1 Hacker, CWL SE SW Sec. 11-27-13w. Lans. 3,797 ft.; Vla. 4,240 ft.; Simp. 4,355 ft.
Skelly Oil Co. No. 1 Royse, C SW Sec. 9-28-11w. Lans. 3,604 ft.; Vla. 4,246-49 ft.; T.D. 4,268 ft.; S.S.O.; 802,000 cu. ft. gas.

Rice County

Fred Jones et al No. 1 Benhke, NW SW NW Sec. 25-18-10w. R.U.
Phoenix Drlg. No. 1 Linville, SW SW SE Sec. 4-20-10w. Simp. 3,375 ft.; Arb. 3,388 ft.; H.F.W. 3,396 ft.; S.D. 3,400 ft.
Vickers Pet. Co. No. 1-A Rodenberg, CNL NW¼ Sec. 8-18-10w. Lans. 2,930 ft.; Arb. 3,265-81 ft., T.D. N.S.

Rooks County

Broadview Oil No. 1 Baxter, NE SW SW Sec. 35-8-16w. Lans. 3,180 ft.; S.S.O.; S.D. 3,260 ft.

Russell County

Phil-Han Oil Co.'s No. 1 Mai, CNL S½ NE Sec. 34-14-14w. Drlg. 2,280 ft.

Saline County

Jess Cling et al's No. 1 Erickson (O.W. D.D.), NE NE NE Sec. 28-16-3w. O.T. D. 1,800 ft.; S.D. 2,577 ft.

Sedgwick County

Cameron & Spencer No. 1 Fields, NE NE NW Sec. 4-28-2. K.C. 2,516 ft.; S.D. 2,670 ft.
Parks et al's No. 1 Fisher, NW NW NE Sec. 25-26-1. Drlg. 875 ft.

Sherman County

Goodland Ind. Gas Co. No. 1 Wilcoxson. SE NW Sec. 27-8s-39w. T.D. 1,100 ft.; est. 25,000 cu. ft. gas.

Stafford County

Atlantic Ref.'s No. 1 Harter, CEL NE SW Sec. 9-21-13w. Drlg. 3,125 ft.
Chas. Barker's No. 1 Gregg, SW NW SE Sec. 35-25-12. S.D. 1,212 ft.
Continental Oil Co. No. 1 Keller, SE SE SE Sec. 15-24-13w. S.O. 3,733-43 ft., cd. 4,111-16 ft. and rec. 5 ft. sat.; T.D. 4,116 ft.; 3,900 ft. O.I.H.

Woodson County

Bird, Hanley & Sheedy No. 1 Pingrey, C S½ SE Sec. 22-25-15. Spd.
Turner et al's No. 1 Tipton, SE NW SW Sec. 32-25-14. Drlg. 235 ft.

MISSOURI

Adair County

Mason Oil Co. No. 1 McGonigle, CNL SE NW Sec. 20-63-13w. S.O. 1,002-73 ft., 1,116-63 ft.; drlg. 1,205 ft.

Andrew County

Davis Bros. et al No. 1 Gee, NW NW SE Sec. 28-60n-35w. S.O. in Bart. 995 ft.; drlg. below 1,805 ft.
Jones & Hyde No. 1 Holt, SE NW NE Sec. 34-60-35w. Bart. 1,003 ft.; T.D. 2,024 ft.; rng. 6-in.

Bates County

Monarch Roy.'s No. 1 Lee, C SW SE Sec. 11-39-30w. S.O. 834-36 ft.; drlg. 856 ft.

Bollinger County

Delmund Oil No. 1 Cooper, SE SE SE Sec. 14-29-9e. S.D. 1,450 ft.

Buchanan County

Miller et al's No. 1 Carrough, C SE SE Sec. 24-57-35w. Rlg.

Butler County

Coastal Pet. et al No. 1 Pierson, SW NE NW Sec. 27-22-6e. S.D. 149 ft. (cor.)

Clay County

Eastern Drlg. Co. No. 1 Williams, NW NW NE Sec. 28-53-32w. S.S.O. 475-80 ft.; gas 595 ft.; S.D. 1,884 ft. in Arb.; H.F.W.; drlg. 1,866 ft.
Pabelo Dev. Co.'s No. 5-A Robb, NW NW SE Sec. 36-52-32. T.D. 600 ft., S.G.; S.D.O.

Clinton County

C. E. King et al's No. 1 Vanderau, SE NE SW Sec. 18-55-31w. Drlg. 50 ft.

DeKalb County

Geo. W. Moore No. 1 McQuate, NE SW SW Sec. 11-57n-31w. Miss. 1,075 ft.; S.D. csg. 1,500 ft.

Harrison County

H. V. Elwell et al's No. 1 Maple, NE SW SE Sec. 3-62-26w. Drlg. 579 ft.

Holt County

Brin & Nathan No. 1 Decker, C NW NW Sec. 1-61-38w. Drlg. below 793 ft.
Markham et al No. 1 Gaffney, SW SE SW Sec. 24-63-40w. Spd. and S.D.

Jackson County

Bradford & Son's No. 1 Trantos, SE NW NW Sec. 8-49-32w. Drlg. 305 ft.
Hulse & Christopher's No. 1 Wiston, NE NW SE Sec. 22-49-32w. S.D. 495 ft.

Livingston County

Davis Bros. No. 1 Minning, SE SE NW Sec. 22-58-23w. T.D. 587 ft.; S.D.O.

Mercer County

Geo. W. Moore No. 1 Castell, NE NE NE Sec. 32-65-24w. Loc.
Geo. W. Moore No. 1 Moss, NW SW SE Sec. 30-65-24w. Hntn. 1,273 ft.; drlg. 1,510 ft.

Putnam County

Morrow et al's No. 1 Cooley, SE SE NW Sec. 33-64-17w. R.U. mch.
C. E. Dittman's No. 1 Houston, NW SW SE Sec. 26-65-19w. Arb. 1,674 ft.; T.D. 1,779 ft.; to test Arb.

Ray County

Loomis-Jordan No. 1 Macey, NE SW NW Sec. 10-53-27w. S.O. 330 ft., T.D.; set csg.

Schuyler County

T. E. Baldwin No. 1 May Johnson, NW NE NE Sec. 21-65-15w. C.O. to run 12-in.

Shelby County

Wright & Turner No. 1 Turner, C NW NW Sec. 27-59n-9w (wildcat). S.D. 650 ft.

Pulaski County

Coker Oil Corp.'s No. 1 Huffman, 330 ft. NW cor. NW SW SW Sec. 29-4n-11w. 8¾-in. csg. 206 ft.; drlg. bl. sh. 1,615 ft.
Lion Oil Ref. Co.'s No. 2 Calloway, 330 ft. SE cor. SE SE Sec. 13-18-18. R.U.

Union County—Schuler

Phillips Pet. Co. No. 9 Sewell, 330 ft. SW cor. NW Sec. 7-18-17. Set 10¾-in. csg. 2,140 ft.; T. Jones sd. 7,596 ft.; tstd. S.W.; 7,640 ft.; set 7-in. csg. 7,-719 ft.; perf. 7,595-7,628 ft.; T.D. 7,-790 ft.; completing.

Union County—Other

Arkansas Southern Oil Corp. No. 3-A Simmons, NW cor. NE NW Sec. 15-18-13. Set 4-in. csg. 2,510 ft.; W.O.C.
Crestrock Oil Co.'s No. 1 E. Riley, 330 ft. S, 250 ft. W, NE cor. NW SW Sec. 9-16-15. S.O. 2,370-80 ft. and 2,-390-2,400 ft.; 6-in. csg. 2,415 ft.; T.D. 2,415 ft.; W.O.C.
H. L. Halverson No. 1 Moore, C SE SE Sec. 1-17s-14w. Set 10¾-in. csg. 103 ft.; W.O.C.
Lion Oil Ref. Co. No. 9-A Hays, Sec. 4-16-15. O.W.W.O.; O.T.D. 7,255 ft.; P.B. 2,325 ft.; rpd. csg. 2,276-80 ft.; S.O.; pmpg. 2,325 ft.
Lion Oil Ref. Co. No. 1 Hill, 330 ft. SE cor. SE NW Sec. 6-18-13. O.W.D.D.; O. T.D. 2,563 ft.; tstd. oil and S.W. 2,682-88 ft.; S.O. in Blossom sd. 2,790-2,818 ft.; set 5-in. csg. 3,056 ft.; perf. 2,674-77 ft.; tbg. 3,056 ft.; T.D. 4,601 ft.
J. R. Lockhart No. 2 P. Jerry, 510 ft. S, 230 ft. W, NE cor. NE SE Sec. 15-17-14. D.S.T. 2,782-90 ft.; rec. 1 jt. oil and 21 stands S.W.; set 7-in. csg. 3,088 ft.; T.D. 3,123 ft.; perf. 2,782-84 ft.; swbd. S.W.; S.S.O.; set retainer 2,695 ft.; perf. 2,653-55 ft.; swbd. S.W.; W.O. 3,123 ft.
Joe Modisett et al No. 2 Union Sawmill Co., C NW NE Sec. 13-18-12. 10¾-in. csg. 1,237 ft.; T. Tr. Pk. 2,865 ft.; cg. 4,494 ft.

MISSISSIPPI

Claiborne County

Claiborne Co. Dev. Co. No. 1 Ruth Hayden, S½ SE Sec. 55-11n-2e. O.W.W.O.; O.T.D. 2,949 ft.; formerly D.&A.; S.D. 3,350 ft.

Harrison County

Big Ridge Oil Co. No. 1 Hingin, Sec. 13-7s-10w. T.D. 2,700 ft.; no report.

Hinds County

G. Jeffereys No. 1 Gaddis Farms, Inc., 700 ft. E, 545 ft. S, NW cor. SE Sec. 26-7n-4w. S.D. 7,221 ft.

Humphreys County

Union Prod. Co. No. 1 Mrs. Mattie Box, C SW Sec. 15-14n-4w. T. igneous rk. 3,634 ft.; cg. 5,527 ft.

Issequena County

Ryan & Anderson, Inc., No. 1 State of Miss., 600 ft. N, 400 ft. E, SW cor. Sec. 36-12n-8w. Drlg. sdy. sh. 3,300 ft.

Lafayette County

Adam O. & G. Co. No. 1 Z. E. Lewellen, 990 ft. WL, 330 ft. NL, NE NW NW Sec. 9-10s-1w. Drlg. chert 3,136 ft.; no report.

Simpson County

Cleve Love No. 1 N. E. Gardner, SW cor. SW NE Sec. 1-10n-17w. S.D. 3,150 ft., Wlx.

Yazoo County

Union Prod. Co. No. 1 G. C. Woodruff, 1,320 ft. N, 660 ft. E, SW cor. Sec. 13-10n-3w. T.D. 4,437 ft.; P.B. 4,337 ft.; cd. 4,540-60 ft., L., oil sd.&sh.; D.S.T. 4,540-60 ft.; ½-in. cks. top and bttm.; W.P. 14 lb.; rec. 42 thrib. 32.8-grv. oil; ran Schlumberger; set 7-in. csg. 4,538 ft.; drlg. plug.

ARKANSAS

Clark County

W. S. King's No. 1 H. Ross, 640 ft. S, 359 ft. W, NE cor. S½ SW Sec. 3-10-21. Cd. sd. S.S.O. 248-65 ft.; 8¼-in. 275 ft.; W.O.C. 275 ft.
W. P. Wilson's No. 1 Hamilton & Mathews, C W½ NE NE Sec. 31-10s-20w. Run 10-in. csg. 41 ft.; T. Nac. 358 ft.; S.S.O.; S.D. 482 ft.

Columbia County

Atlantic Ref. Co. No. 1 Brown, C NW NE Sec. 22-17-20. T.D. 7,635 ft.; set csg.; W.O.C.
Atlantic Ref. Co.'s No. 2 L. Spain, C SE SW Sec. 18-17-19. T.D. 7,540 ft.; rmd. to bttm.; rng. csg.
Marine Oil Co. No. 1 Jones, 656 ft. N, 663 ft. W, SE cor. NE NW Sec. 21-17-20. Drlg. rd.&gr. sh. 5,691 ft.
Normandie Oil Co. No. 1 Dees, C NE SE Sec. 24-17-20. Fsg. D.S. 7,439 ft.
Phillips Pet. Co. No. 2 Walthall, C SW SW Sec. 15-17-20. Set 5½-in. csg. 7,-698 ft.; perf. 7,563-7,623 ft.; S.W.; tstg.; T.D. 7,720 ft.
Shell Oil Co., Inc.'s No. 1 W. F. Merritt, C NE SW Sec. 15-17-20. R.U.
Southwood Oil Co. and Ark. Fuel Oil Co. No. 1 Jas. Johnson, C NE SE Sec. 22-17-20. T.D. 7,640 ft.; Set 6-in. csg. 7,-640 ft.; perf. 7,600-36 ft.; tstg.
Southwood Oil Co. No. 1 H. F. Simmons, C NE SW Sec. 22-17-20. 10¾-in. csg. 2,167 ft.; drlg. rd.&gr. sh. 5,446 ft.
Southwood Oil Co. No. 2 Walthall, C SW NW Sec. 22-17-20. Set 7-in. csg. 7,520 ft.; T.D. 7,550 ft.
Standard Oil No. 1 J. A. Foster, Sec. 19-17s-19w. Set 6-in. csg. 7,453 ft.; set 370 ft. of 4½-in. at 7,594 ft.; fsg. tbg.; T.D. L., 7,594 ft.; fsg.
Standard Oil Co. of La. No. 1 D. R. Booth, 660 ft. S and E, NW cor. NW SE Sec. 24-17-20. Set 6-in. csg. 7,485 ft.; T.D. 7,570 ft.; W.O.C.
Standard Oil Co. of La. No. 1 Merritt et al Unit, C SW SE Sec. 16-17-20. Set 9⅝-in. csg. 2,212 ft.; drlg. sd.&sh. 6,117 ft.
G. H. Vaughn's No. 1-B J. Jones, C NW NE Sec. 21-17-20. Drlg. rd.&gr. sh. 5,-840 ft.

Craighead County

Tennark, Inc., No. 1 R. M. Martin, SE cor. NE NE Sec. 35-14-3e. Drlg. hd. L. 3,-137 ft.

Faulkner County

Cato Oil Co., Inc.'s No. 1 R. R. Harrell, 330 ft. SE cor. SE SW Sec. 35-4n-12w. Set 10-in. csg. 210 ft.; 7-in. csg. 2,260 ft.; sd. 2,367-70 ft.; flwd. est. 40,000 cu. ft. gas daily; S.I.C.P. 50 lb.; T.D. 2,380 ft.; fsg. bit.

Howard County

Wm. James No. 1 I. M. Brooks, 115 ft. W, 462 ft. N, SE cor. NW NW Sec. 2-8s-27w. Pulled 10¾-in. csg.; rmd. to bttm.; S.D. 346 ft.; W.O.
Joe Rogers et al No. 1 Dierks Lbr. Co., C SW SW Sec. 7-8s-28w. R.U.C.T.

Independence County

C. P. Daniels' No. 1 Kelly Myatt, 1,085 ft. S, 50 ft. E, NW cor. SE Sec. 16-12n-5w. T. gas sd. 598 ft.; T.D. 603 ft.; no csg. in hole; rmg. to bttm.

Lafayette County

East Texas Ref. Co. et al's No. 1-B Bell, C N½ SE NW Sec. 19-16-23. R.U.
East Tex. Ref. Co. et al No. 2 Buchanan, 330 ft. N, 660 ft. E, SW cor. NE NW Sec. 19-16-23. Set 5½-in. csg. 3,386 ft.; swbd. dry; acd. with 3,000 gal.; flwd. 239 B.O.; ½-in. ck. and went dead; S.I.; C.P. 100 lb.; W.O. 3,474 ft.
East Texas Ref. Co. et al's No. 1 Geo. McGee, C N½ NE NE Sec. 23-16-24. M.I. rig.

Little River County

C. & M. Drlg. Co.'s No. 1 Strawn, NW cor. SE SW Sec. 17-10-32. Flwg. S.W.; will recmt. 7-in. csg. 1,590 ft.; T.D. 1,810 ft.

Lonoke County

Cabot Drlg. Club, Inc., No. 1 Benson townsite, Sec. 18-4n-9w. Reported S.O. 1,400-50 ft.; hole clean; ran survey to 2,573 ft.; P.B. 1,470 ft.; set 4½-in. csg. 1,390 ft.; reset 4½-in. csg. 1,540 ft.; P.B. to test sd. 1,950 ft.; shot with 40 qt. nitro and bailed dry; arng. P.B. 1,340 ft. and test.
W. L. Tedford No. 1 Anderson, Sec. 7 4n-9w. Set 6¼-in. csg. 1,025 ft.; re-seating 6-in. csg. to S.O.W. 1,125 ft.

Nevada County

Benedum & Trees Oil Co.'s No. 2 W. R. Mitchell, 330 ft. N, 990 ft. W, SE cor. Sec. 4-14-20. Drlg. plug 2,140 ft.

Ouachita County

J. E. Crosbie, Inc., No. 2 F. A. Laney, Sec. 36-15-16. Stk. 5-½-in. 2,777 ft.; set 966 ft. at 2,777 ft.; T.D. 2,832 ft.; shot with nitro 2,575-78 ft.; pmpd. est. 50 B.F.P.D.; S.S.O.; O.T.D. 2,832 ft.; rpd. csg. 2,570-78 ft.; rpd. csg. 2,306-10 ft.; pmpd. est. 600 bbl. S.W. per day; W.O.
Lion Oil Ref. Co. No. 1 B. Annie, SE NE Sec. 29-15-17. D.S.T. 5,641-54 ft.; 15-min. rec. 6½ jts. mud and rainbow oil; no W.P.
A. B. Turner et al No. 1 Cook Est., C NW SW Sec. 27-15-18. 10-in. 210 ft.; T. Nacth. 1,588 ft.; claim S.S.O.; S.D. 1,603 ft. for wtr.

Pike County

Bruce E. Wallace No. 2-A Glenn Tilyeu, 320 ft. N, 330 ft. W SE cor. Sec. 26-8s-24w. Set 6-in. csg. 385 ft.; reported S.O. 400 ft.; set 4-in. csg. 501 ft.; fsg. C.T. bit 557 ft.

LOUISIANA

N. LOUISIANA WILDCATS

Bienville Parish

Ark. La. Gas Co.'s No. 1 Gayoso, 1,880 ft. N, 660 ft. E, SW cor. Sec. 14-16-10. O.W.D.D.; O.T.D. 2,613 ft.; drlg. sh.&anhy. 4,113 ft.
Hunt Oil Co. No. 1 Hodge-Hunt Lbr. Co., 300 ft. E, C Sec. 36-17n-6w. T. Pettit L. 6,710 ft.; no por.; drlg. sh.&L. 7,-874 ft.

Bossier Parish

Gulf Ref. Co.'s No. 20 C. B. Hodges, 3,-131 ft. N, 1,388 ft. W, SE cor. Sec. 24-16-12. 16-in. csg. 117 ft.; drlg. sh. 1,690 ft.
Longwood O. & G. Co.'s No. 1 Belden & Baughn, C SE NW Sec. 28-20-12. Drlg. sh. 2,900 ft.
Premier Inv. Co.'s No. 6-B Kendrick, 1,-714 ft. E, 1,347 ft. N, SW cor. Sec. 22-19-11. Cg. 1,200 ft.
J. B. Stovall's No. 1 Gayoso, 50 ft. NW cor. SW SW Sec. 14-19-11. Drlg. sh. 260 ft.
Union Prod. Co. No. 1 Lincoln Ld. Co., 1,320 ft. W, C Sec. 17-16-10. Tstd. Ptt. L. 5,230-50 ft.; no show; D.S.T. 5,230-50 ft.; tstd. dry; T. Tr. Pk. 5,532 ft.; arng. set csg. 5,667 ft.

Caddo Parish

J. G. Bailey et al's No. 2-A Muslow, Sec. 17-20-15. 10-in. 62 ft.; 8-in. 1,325 ft.; used 3,000 gal. acd.; tstg. 1,571 ft.
S. H. Cassidy et al's No. 2 R. E. Collins, 1,235 ft. N, 170 ft. W, SE cor. NE SE Sec. 2-20-16. Drlg. sh. 1,325 ft.
Paul Cooper's No. 7 Stiles, Sec. 35-21-16. O.W.D.D.; O.T.D. 1,850 ft.; arng. dpn.
East Texas Ref. Co.'s No. 1 T. A. Howell et al, 450 ft. S, 660 ft. W, NE cor. Sec. 8-23-15. T.D. 6,112 ft.; set 5-in. csg. 6,024 ft.; tstg.
Hamilton & Stone No. 1 Atlanta, 500 ft. S. 244 ft. W, NE cor. NW Sec. 2-20-16. Set 6-in. csg. 1,701 ft.; cg. 2,990 ft.
A. R. Hancock's No. 5 Standard Oil fee.

Sec. 18-21-15. O.W.D.D.; set 7-in. csg. 1,525 ft.; W.O.C.

Ben Levy et al's No. 2 Crystal, 810 ft. SW cor. NW Sec. 25-21-16. Drlg. sdy. sh. 2,170 ft.

C. C. Lowery's No. 2 Collins et al, 985 ft. E. 210 ft. N, C Sec. 7-20-15. R.U.

P. N. McCullough's No. 1 Hart, SW SW Sec. 21-21-16. Set 5-in. csg. 1,023 ft.; W.O.C. 1,025 ft.

Mahoan & Griffith's No. 2 J. W. Browning, Sec. 27-22-16. Drlg. sh. 2,210 ft.

A. H. Neighbors No. 1 W. C. Agurs, 660 ft. N, 990 ft. E, SW cor. SE Sec. 2-20-16. 8-in. csg. 1,430 ft.; 3,000 gal. acd.; H.F.O.; T.D. 1,605 ft.; W.O.

Oblinger & Ritter No. 3 Boisseau, 1,220 ft. N, 1,310 ft. E, SW cor. SE Sec. 34-21-16. 6-in. csg. 969 ft.; W.O.S.R.

Prairie River Synd. No. 2-B Hutchison, 4,055 ft. N, 480 ft. E, SW cor, Sec. 3-15-12. Set 13⅜-in. 735 ft.; 4,545-54 ft. S.S.G.; fairly por. ool. L.; good odor gas; W.O. 4,566 ft.

John Schmidt No. 2 Sproull, 970 ft. N, 570 ft. W, SE cor. Sec. 32-20-16. Tstd. S.W. 1,654 ft.; W.O.

Seymour Oil Co. No. 1 Hughes et al, 330 ft. NE cor. NW Sec. 15-20-15. W.O. csg. 2,204 ft.

Skidmore-O'Mara, Inc.'s No. 1 Muslow, O.W.W.O., 4,150 ft. N, 579 ft. W, SE cor. SW Sec. 31-21-15. Will set csg. 1,572 ft.

Stanolind O. & G. Co. No. 1, 131 Dillon hrs., C SE NE Sec. 14-21-15. Cg. hd. sd.&sh. 7,125 ft.

Terrill & Horton No. 1 Smith, 200 ft. S and W, C Sec. 36-21-16. Drlg. 2,185 ft.

Texas Co.'s No. 17-B Noel, 1,650 ft. E, 990 ft. S, NW cor. Sec. 14-21-15. R.U.

Caldwell Parish

Ark. Fuel Oil Co. No. 1 La. Central Lbr. Co., C NW SW Sec. 31-12-3e. T. Wlx. 1,516 ft.; 9⅝-in. csg. 1,732 ft.; drlg. sh.&L. 4,752 ft.

Critchett & Woods (formerly E. T. Oakes) No. 1 Kyles, NE cor. SW NE Sec. 18-11-3e. Arng. dpn. 3,004 ft.

Catahoula Parish

Bell Drlg. Co. No. 1 Peck, C SW NE Sec. 38-11n-8e. S.D. 50 ft.

Claiborne Parish

Lisbon Expltn. Co. No. 1 Roberta Vaughn, 330 ft. N, 660 ft. E, SW cor. NW NE Sec. 36-21-5. O.W.D.D.; O.T.D. 5,313 ft.; recmtd. 7-in. csg. 5,343 ft.; drlg. rd.&gr. sh. 5,917 ft.

Maritsky & Bibby's No. 4 McClung, Sec. 29-21-7. R.U.

De Soto Parish

Daniel Murray No. 1 Russell, 50 ft. N, 500 ft. W, SE cor. NE NW Sec. 12-11-16. O.W.D.D.; O.T.D. 2,046 ft.; T.D. 2,515 ft.; tstd. S.W.; P.B. 1,700 ft.; tstd. small S.G.; drlg. sh. 2,670 ft.

Rooath & Genecov Prod. Co. No. 1 Wooluma, 990 ft. S, 330 ft. E NW cor SW¼ Sec. 29-12-12. T. Nac. sd. 1,038 ft.; reported S.O. 1,038-64 ft.; P.B. 1,048 ft.; 7-in. 1,038 ft.; tstd. dry.

C. H. Tuttle No. 2-A Wemple, E NW cor. SW¼ Sec. 14-12n-11w. Drlg. sdy. sh. 2,465 ft.

Watts Oil & Gas Co. No. 1 Frank Grocery Co., 338 ft. S, 450 ft. W NE cor., NW Sec. 35-12-11. S.D. 940 ft.

Franklin Parish

Continental Oil Co.'s No. 1 Sherrouse, 330 ft. N, 660 ft. W, SE cor. NE SE Sec. 22-13n-8e. Set 16-in. csg. 207 ft.

Grant Parish

Arrow Drlg. Co.'s No. 1 Maxwell, 330 ft. S, 810 ft. W, C Sec. 9-9-1e. Drlg sdy. sh. 1,255 ft.

C. M. Bowers' No. 1 Morrison, 2,740 ft. N, 3,040 ft. W, SE cor. Sec. 34-9n-1w. S.D. 1,590 ft.; rig repair.

La Salle Parish

H. N. Saurage No. 5 Dean, 782 ft. S, 720 ft. W, NE cor. Sec. 23-9-1e. T. sd. 1,590 ft.; 5½-in. csg. 1,590 ft.; T.D. 1,591 ft.; W.O.S.R.

Smith Bros.' No. 1 Kenney, 660 ft. S, 150 ft. W, C Sec. 7-10-2e. R.U.

Morehouse Parish

Union Prod. Co. No. 1-A Tensas-Delta, 1,894 ft. W, 1,584 ft. S, NE cor. SE Sec. 8-22-4. Set 20-in. csg. 125 ft.; 16-in. csg. 712 ft.; set 10¾-in. csg. 2,448 ft.; drlg. 5,196 ft.

Sabine Parish

Major Oil Co. No. 7 Bowman Hicks, 330 ft. NW cor. NE SE Sec. 11-7-13. T. clk. 2,139 ft.; set 7-in. csg. 2,143 ft.; W.O.C.

M.C.M. Drlg. No. 1 Sipulvado, Sec. 4-7n-13w. 6-in. 2,040 ft.; T. chk. 2,012 ft.; tstd. S.G. 2,108 ft.; used 3,000 gal. acd.; tstd. S.O.; tstg. 2,494 ft.

Oglesby & Baird's No. 1 Sabine Lbr. Co., SW cor. SW SE Sec. 5-7-13. S.D. 675 ft.

Okla.-Texas Tr.'s No. 3 Frost Lbr. Co., NE cor. NE SW Sec. 22-9-13. S.D. 1,-243 ft.; drlg. ch. rk. 1,830 ft.

K. R. Phillips No. 1 Craig, 335 ft. S, 330 ft. E NW cor., SE Sec. 22-9-13. 5-in. csg. 1,568 ft.; T.D. 1,683 ft.; tstd. S.O.; used 500 gal. acd.; 1,300 ft. F.I.H.; T.D. 1,698 ft.; W.O.S.R.

W. L. Posey No. 1 Rivers, C NW NW Sec. 26-8-13. 6-in. csg. 2,147 ft.; T.D. 2,150 ft.; W.O.C.

W. M. Quick No. 1 Sabine, SE cor. NE SE Sec. 8-7-13. 6-in. csg. 2,061 ft.; tstg. 2,116 ft.

H. M. Sneed No. 1 Leone, SW cor. NW SE Sec. 8-7-13. T.D. 1,962 ft.; 6-in. csg. 2,061 ft.; W.O.S.R.; T.D. 2,116 ft.

J. A. Williams No. 1 Long Bell Lbr. Co., 250 ft. S, 550 ft. W, C Sec. 33-8-14. T. ch. 2,097 ft.; used 2,000 gal. acd. and tstd. dry; hole clean; W.O.; T.D. 2,247 ft.

Webster Parish

Geo. B. Barham's No. 1 Bodcaw Lbr. Co., 627 ft. N, 710 ft. E, SW cor. SE Sec. 15-21-10. O.W.D.D.; O.T.D. 4,683 ft.; arng dpn.

Geo. B. Barham No. 1 Merritt, 596 ft. N, 736 ft. E, SW cor. Sec. 14-21-10. Set 5-in. csg. 5,913 ft.; Hillwy. sd. 5,675-80 ft. (gas and dist.) and 5,756-63 ft., oil; perf. 5,675-80 ft. and 5,756-83 ft.; T.D. 5,913 ft.; tstd. 36 B.P.D.; open tbg.; T.P. 50 lb.; C.P. 150 lb.; S.I.; W.O. 5,913 ft.

Hassie Hunt's No. 1 Gardner, C NW NE Sec. 32-21-10. Drlg. sh. 3,660 ft.

Hunt Oil Co. No. 1 Glass et al, C SE NW Sec. 30-21-9. Set 9⅝-in. csg. 5,665 ft.; drlg. sdy. sh. 7,142 ft.

Hunt Oil Co. No. 2 E. L. Stewart, Sec. 32-21n-10w. No Hillwy. sd.; drlg. sdy. sh. 7,847 ft.

Midstates Oil Corp.'s No. 1 W. L. Coyle, 100 ft. NW, C NE SE Sec. 20-21-10. Drlg. sh.&L. 4,622 ft.

Ohio Oil Co.'s No. 25 Gray Acct. 1, 1,-980 ft. S, 660 ft. E, NW cor. Sec. 26-21-10. Set 9⅝-in. csg. 616 ft.; drlg. sh.&L. 4,460 ft.

Stanolind O. & G. Co. No. 3 Pardee, C SW SE Sec. 35-21-10. Fsg. drill collar 7,211 ft.

Stanolind O. & G. Co.'s No. 4 Pardee, 660 ft. SE cor. Sec. 25-21-10. Drlg. sh. 1,690 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 3 Brookshire. Sec. 66-12s-3e. Drk.

Continental Oil Co. No. 1 David Meaux, Sec. 9-12s-3e. T.D. 10,913 ft.; S.D.

Continental Oil Co. No. 1 Francioi, Sec. 67-12s-3e. Drk.

Bancroft—Beauregard Parish

Republic Prod. Co.'s No. 1 Whitman, Sec. 21-6s-13w. R.U.

Republic Prod. Co. No. 10 Columbia Ld. & Tbr. Co., Sec. 15-6s-13w. Drk.

Republic Prod. Co. No. 9 Lutcher Moore, Sec. 15-6s-13w. Drlg. sdy. sh. 9,132 ft.

Republic Prod. Co. No. 10 Lutcher-Moore, Sec. 15-6s-13w. T.D. 7,330 ft.; 5½-in. csg. 7,330 ft.

Bateman Lake—St. Mary Parish

Texas Co. No. 1 St. Mary Parish Sch. Bd., Sec. 16-16s-12e. Drlg. sh.&L. 4,-598 ft.

Texas Co. No. 2 State-Bateman Lake. Sec. 21-16s-12e. T.D. 10,986 ft.; 7⅝-in. csg. 10,985 ft.; drlg. sh. 11,454 ft.

Baton Rouge—East Baton Rouge Parish

W. V. Bowles et al's No. 1 E. Reinkin, Sec. 46-7s-1e. Drlg. 3,630 ft.

Guaranty Oil Co. No. 2 Morgan, Sec. 65-7s-1w. Drlg. sdy. sh. 5,004 ft.; no report.

M. T. Grubb et al No. 1 University Hills, Sec. 68-7s-1w. T.D. 6,588 ft.; 5½-in. csg. 6,565 ft.; comp.; no ga.

Wm. Helis No. 1-B Duplantier, Sec. 68-7s-1w. Drlg. sdy. sh. 5,162 ft.; no report.

Wm. Helis et al's No. 2-D D. D. A. Duplantier, Sec. 66-7s-1w. Drk.

Wm. Helis No. 7-A D. A. and E. A. Duplantier, Sec. 65-7s-1w. T.D. 6,477 ft.; 7-in. csg. 6,460 ft.; comp.; no ga.

Wm. Helis et al's No. 2 Materiste, Sec. 66-7s-1w. Drlg. sh. 4,630 ft.

Wm. Helis No. 3 Nelson, Sec. 36-7s-1w. T.D. 7,194 ft.; perf. csg. 6,462-68 ft.; flwd. 80% S.W.; killed; sqzd. perf.; W.O.C.; perf. csg. 6,460-68 ft.; lost swb.; P.B. 6,486 ft.; perf. csg. 6,460-82 ft.; would not flw.

Wm. Helis' No. 2 Williams, Sec. 66-7s-1w. Loc.

T. G. Markley et al No. 3 Knox, Amis-Farnbacker, Sec. 66-7s-1w. Loc.

T. G. Markley-Crosby Drlg. Co.'s No. 4 Kmoy-Amis Farnbacker, Sec. 66-7s-1w. T.D. 6,482 ft.; 7-in. csg. 6,468 ft.; comp. no ga.

Bay St. Elaine—Terrebonne Parish

Texas Co. No. 19 State-Bay St. Elaine. Sec. 18-22s-18e. Drlg. sh. 5,730 ft.

Bayou Choctaw—Iberville Parish

Standard Oil Co. (La.) No. 11 Wilbert. Sec. 53-9s-11e. T. salt 718 ft.; drlg. salt 2,107 ft.; no report.

Bayou des Glaise—Iberville Parish

Humble O. & R. Co. No. 1-B Wilbert. Sec. 78-8s-8e. T.D. 3,025 ft.; 13⅜-in. csg. 3,000 ft.; T. salt 4,101 ft.; T.D. 4,182 ft.; S.D.

Bayou des Allemands—St. Charles Parish

Amerada Pet. Corp. No. 2 Gheens Realty Co., Sec. 37-15s-20e. Drlg. sh. 6,810 ft.

Black Bayou—Cameron Parish

Earth Pet. Co. No. 2 R. A. Moore, Sec. 18-12s-12w. Drlg. sh. 5,365 ft.

Caillou Island—Terrebonne Parish

Texas Co. No. 20 State, Sec. 17-23s-20e. Rig.

Texas Co. No. 57 State, Sec. 20-23s-20e. T. salt 3,734 ft.; T.D. 3,750 ft., salt; 7-in. csg. 3,750 ft.; perf. csg. 3,680-3,-710 ft.; tstd. mud; perf. csg. 3,620-64 ft.; sanded up; pulled screen and reset; tstg.

Cameron Meadows—Cameron

Magnolia Pet. Co. No. 25 Cameron Meadows, Sec. 21-14s-13e. Drlg. sd.& L. 6,077 ft.

De Large—Terrebonne Parish

Fohs Oil Co. No. 1 Buckley-Mahler, Sec. 25-19s-16e. T.D. 12,942 ft.; P.B. 12,430 ft.; sdtrkd.; set 2,895 ft. of 7-in. csg. at 12,740 ft.; T.D. 13,270 ft.; S.D.; may abd.

Chacahoula—La Fourche Parish

Sun Oil Co. No. 1 Cypress. Sec 75-15s-15e. 13⅜-in. csg. 1,842 ft.; drlg. sd.& lign. 5,218 ft.

Sun Oil Co. No. 2 Dodge Sunberry, Sec. 65-15s-15e. S.D. 4,259 ft.; anhy.

Chalkley Field—Cameron Parish

Humble O. & R. Co.'s No. 5 K. B. Hanzen, Sec. 9-12s-6w. Drk.

Humble O. & R. Co. No. 4 Sweet Lake Ld. & O. Co., Sec. 7-12s-6w. T.D. 8,-448 ft.; P.B. 7,508 ft.; sdtrkd.; T.D. 6,755 ft.; rmg.

Shell Oil Co., Inc., No. 3 Hanzen, Sec. 21-12s-6w. 10¾-in. csg. 2,752 ft.; cg. oil sd. 8,818 ft.; T.S. 8,815 ft.

Charenton—St. Mary Parish

Commerce Oil Co.'s No. 3 Parro, Sec. 31-13s-10e. Drlg. sh. 1,871 ft.

DeArman et al's No. 1 C. A. Kern, Sec. 21-13s-9e. T.D. 1,125 ft.; 7-in. csg. 1,-106 ft.; I.P. 200 B.P.D.; pmpg.

Fifteen Oil Co. No. 2 State, Sec. 31-13s-10e. Drlg. sh. 6,739 ft.

Knisley Oils, Inc.'s No. 1 Hertel, Sec. 21-13s-9e. T.D. 1,806 ft.; P.B. 1,150 ft.; W.O.C.

Pan American Prod. Co. No. 14 Laws Realty Co., Sec. 30-13s-10e. T.D. 8,009 ft.; P.B. 7,170 ft.; made sqz. job 7,-145-55 ft.; W.O.C.

Pan American Prod. Co. No. 16 Laws Realty Co., Sec. 30-13s-10e. Drlg. sh. 4,552 ft.

Pan American Prod. Co. No. 18 Veeder, Sec. 11-13s-9e. T.D. 1,294 ft.; abd.

Pan American Prod. Co. No. 19 Veeder, Sec. 11-13s-9e. T.D. 2,640 ft.; 7-in. csg. 2,630 ft.; W.O.S.R.

St. Mary Oil Co. No. 1 Achee, Sec. 21-13s-9e. T.D. 1,124 ft.; 7-in. csg. 1,108 ft.; I.P. 213 B.P.D.; pmpg.

St. Mary Oil Co.'s No. 2 Achee, Sec. 21-13s-9e. T.D. 1,121 ft.; 7-in. csg. 1,108 ft.

St. Mary Oil Co.'s No. 3 Achee, Sec. 21-13s-9e. T.D. 1,121 ft.; 7-in. csg. 1,108 ft.; I.P. 246 B.P.D.; pmpg.

St. Mary Oil Co.'s No. 4 Achee, Sec. 21-13s-9e. T.D. 1,120 ft.; I.P. 215 B.P. D.; pmpg.

Cheneyville—Rapides Parish

Gulf Oil Corp. No. 1 Bickerstaff, Sec. 4-18s-2e. Drlg. sd.&sh. 2,135 ft.

Gulf Oil Corp. No. 1 C. U. Pope, Sec. 4-18-2e. T.D. 5,795 ft.; S.W. sd.; P.B.; sdtrkd.; drlg. 4,693 ft.

S. W. Richardson No. 2 Well, Sec. 54-1s-2e. T.D. 5,797 ft.; perf. csg. 5,735-37 ft.; I.P. 227 B.P.D.; 11/64-in. ck.

Convent—St. James Parish

Continental Oil Co. No. 2 Colonial Sugars, Inc., Sec. 50-12s-4e. Drlg. sh.; no report.

Continental Oil Co.'s No. 2 Realty. Sqzd. perf. 8,035-86 ft.; perf. csg. 7,970-90 ft.

Choctaw—Iberville Parish

Standard of La. No. 1 Wilbert, Sec. 53-9s-11e. Loc.

Creole—Cameron Parish

Superior Oil Co.'s No. 8 State, Twp. 15s-8w. R.U.

Superior Oil Co. No. 7 State, Gulf of Mexico. T.D. 6,850 ft.; P.B.; sdtrkd.; T.D. 6,748 ft.; I.P. 300 B.P.D.; 11/64-in. ck.

Darrow—Ascension Parish

Humble O. & R. Co. No. 24 Community, Sec. 31-10s-2e. Drlg. 5,030 ft.

Kiva Oil Co. No. 1 Duplessis. Sec. 69-10s-2w. S.D. 2,523 ft.

Dog Lake—Terrebonne Parish

Texas Co. No. 23 State, Sec. 5-22s-16e. Drlg. sh. 7,136 ft.

Edgerly Field—Calcasieu Parish

Emerson Oil Co. No. 14 Hunter, Sec. 21-9s-11w. T.D. 3,504 ft.; 5½-in. csg. 3,-475 ft.; W.O.S.R.

Eola—Avoyelles Parish

Amerada Pet. Corp.'s No. 2 Glaze, Sec. 6-2s-3e. Drk.

Amerada Pet. Corp.'s No. 3 Irion, Sec. 6-2s-3e. Loc.

Amerada Pet. Corp.'s No. 4 C. B. Marchive, Sec. 6-2s-3e. R.U.

Amerada Pet. Corp.'s No. 5 C. B. Marchive, Sec. 6-2s-3e. Loc.

Amerada Pet. Corp.'s No. 3 R. L. Whitlow, Sec. 6-2s-3e. Loc.

Amerada Pet. Corp.'s No. 4 Whitlow, Sec. 1-2s-2e. Loc.

Amerada Pet. Corp. No. 1 Wm. Glaze, Sec. 6-2s-3e. Cg. 8,499 ft.; sd. 8,436-99 ft.; T.D. 8,520 ft.; 5½-in. csg. 8,519 ft.; perf. csg. 8,383-8,505 ft.; I.P. 160 bbl. in 9 hrs.; ¼-in. ck.

Amerada Pet. Corp. No. 2 R. R. Iron, Sec. 6-2s-3e. Cg. bkn. sd. 8,457 ft.

Amerada Pet. Corp. No. 2 Mrs. C. B. Marchive, Sec. 6-2s-3e. T.D. 8,530 ft.; 5½-in. csg. 8,527 ft.; perf. csg. 8,388-8,505 ft.; I.P. 375 B.P.D.; ¼-in. ck.

Amerada Pet. Corp. No. 3 Marchive, Sec. 6-2s-3e. Drlg. sh. 2,518 ft.

Amerada Pet. Corp. No. 1 Merchants & Planters Bnk., Sec. 41-1s-3e. Loc.

Amerada Pet. Corp. No. 2 Whitlow, Sec. 6-2s-3e. Drlg. sh. 7,540 ft.

J. Edward Jones' No. 1 Barrone. T.D. 8,715 ft.; abd.

Gulf Explh. Co. No. 5 Samuel Haas Est., Sec. 8-2s-3e. T.D. 8,584 ft.; 5½-in. csg. 8,584 ft.; perf. csg. 8,565-70 ft.; flwd. oil; went dead; S.D.

Geo. Lilly et al No. 1 Dent, Sec. 1-2s-2e. R.U.

Sid Richardson No. 1 Sam Haase, Sec. 1-2s-2e. T.D. 8,813 ft.; sd. 8,552-62 ft.; I.P. 276 B.P.D.; 10/64-in. ck.

Sid Richardson No. 3 State-Bayou Bouef, Sec. 6-2s-3e. Drlg. sh. 980 ft.

S. W. Richardson's No. 6 Haas Inv. Co., Sec. 7-2s-3e. Bldg. road.

Fausse Point—Iberia Parish

Texas Co. No. 6 State, Twp. 11s-8e. R.U.

Garden Island—Plaquemines Parish

Texas Co. No. 36 State, Sec. 38-23s-33e. Drlg. sh. 3,312 ft.

Golden Meadows—La Fourche Parish

F. W. Bennett O. & R. Co.'s No. 1 Justillien Orgeron, Sec. 12-19s-22e. Cd. oil sd. 5,157-5,200 ft.; cg. sdy. sh. 5,430 ft. no report.

Golden Meadows Oil Co.'s No. 1 Collins Unit, Sec. 12-19s-22e. R.U.

Wm. Helis' No. 1 Gaspard & Rizau, Sec. 9-19s-22e. Cg. 2,656 ft.; no report.

M. H. Marr and R. A. Bristol No. 1 Church property, Sec. 2-19s-22e. T.D. 7,724 ft.; sdtrkd.; T.D. 9,007 ft.; P.B. and sdtrkd.; T.D. 2,652 ft.; T. sd. 2,647 ft.; 7-in. csg. 2,647 ft.; tstg.

M. H. Marr & G. H. Vaughn No. 1 Adam Terrebonne, Sec. 9-19s-22e. Drk.

M. H. Marr and G. H. Vaughn No. 1 B. &D. Unit, Sec. 12-19s-22e. T.D. 9,050 ft.; sdtrkd. 5,050 ft.; drld. to 8,453 ft.; P.B. 8,291 ft.; sdtrkd.; drlg. sh. 7,312 ft.

Martex Pet. Corp. No. 2 Falgout Holding Co., Sec. 9-19s-22e. T.D. 8,500 ft.; 7-in. csg. 8,500 ft.; perf. csg. 8,148-65 ft.; tstd. S.W.; perf. csg. 8,148-60 ft.; tstd. 2,500 lb. press. on D.S.T.; washing to bttm. to test.

St. Mary Oil Co.'s No. 2 Choust, Sec. 12-19s-22e. R.U.

St. Mary Oil Co.'s No. 1 Unit No. 7, Sec. 9-19s-22e. R.U.

Terouche Oil Co.'s No 1 Rudolph Cheramre, Sec. 12-9s-22e. Drlg. sh. 3,330 ft.

Texas Co. No. 1 E. L. Deramee, Sec. 12-19s-22e. Drlg. sh. 6,920 ft.

Texas Co. No. 1 Falgout Holding Co., Sec. 9-19s-22e. Cd. sd.&sdy. sh., S.O. 7,895-7,935 ft.; T.D. 7,945 ft.; 7-in. csg. 7,928 ft.

Texas Co. No. 2 La Terre, Sec. 6-20s-22e. Cd. O.S. 10,031-41 ft.; cg. ahd.; no report.

Texas Co. No. 2 State-Catfish Lake, Sec. 3-20-21e. T.D. 10,250 ft.; 7⅝-in. csg. 2,903 ft.; drld. to 2,775 ft.; perf. 2,750-72 ft.; swbd. 50% oil; R.U. to rmp.

Texas Co. No. 3 State-Catfish Lake, Sec. 76-19s-21e Loc.

Texas Co. No. 1 Theriot, Sec. 12-19s-21e. Drlg. sh. 2,810 ft.

Grand Bay—Plaquemines Parish

Gulf Oil Corp. No. 6-A Grand Prairie Lv. Dist., Sec. 17-20s-10e. Drlg. 8,-910 ft.

Gulf Ref. Co. No. 3 State QQ, Sec. 31-19s-14e. Drlg. sh. 7,312 ft.

Texas Co. No. 1 State-Lookout Pass, Sec. 48-20s-18e. Loc.

Grand Lake—Cameron Parish

Amerada Pet. Corp. No. 1 Mallard Bay State. Sec. 12-13s-4w. Drlg. sd.&gvl. 378 ft.

Superior Oil Co.'s No. 3 State. R.U.

Hackberry—Cameron Parish

Stanolind O. & G. Co.'s No. 1 Benson-Vincent, Sec. 29-12s-10w. Loc.

Gulf Oil Corp. No. 25-A Erwin, Sec. 13-12s-10w. Drk.

Gulf Oil Corp.'s No. 26-A M. P. Erwin, Sec. 13-12s-10w. Drk.

Stanolind O. & G. Co. No. 28-A Gulf fee, Sec. 30-12s-10w. T.D. 7,037 ft.; P.B. 5,-704 ft.; sdtrkd.; 7-in. csg. 7,019 ft.; drlg. sh. 7,150 ft.

Superior Oil Co. No. 6 Benson-Vincent, Sec. 30-12s-10w. Drlg. sh. 6,873 ft.

Texas Co. No. 27-B State, 623 ft. S, and 5,142 ft. E of SE cor. Sec. 12-12s-10e, in Twp. 12s-9w. S.D. 6,758 ft.

Union Sulphur Co. No. 12 Doiron, Sec. 37-12s-10w. T.D. 8,064 ft.; P.B. 4,050 ft.; sdtrkd. 4,162 ft.; drlg. sh.&sd. 6,-036 ft.

Horseshoe Bayou—St. Mary Parish

Texas Co.'s No. 3 State, Sec. 40-17s-9e. Drlg. sh. 870 ft.

Jefferson Island—Iberia Parish

Phillips Pet. Co. No. 1 Breaux, Sec. 41-12s-5e. T.D. 8,461 ft.; P.B.; sdtrkd. 4,403 ft.; drlg. sh. 9,721 ft.

Texas Co.'s No. 3 Jefferson Salt Mining Co., Sec. 58-12s-5e. Drlg. sdy. sh. 2,-568 ft.

Jennings—Acadia Parish

Carter-Perrin & Brian No. 1 Martel, Sec. 47-9s-2w. T.D. 1,916 ft.; 6-in. csg. 1,-862 ft.; tstg.

Glassell-Glassell No. 8 Trusher, Sec. 42-9s-2w. Loc.

Shell Oil Co., Inc., No. 7 Conover, Sec. 40-9s-2w. 5½-in. csg. 7,166 ft.; T.D. 7,547 ft.

Stanolind O. & G. Co. No. 115 Crowley Oil & Min. Co., Sec. 48-9s-2w. R.U.

Lafitte—Jefferson Parish

Texas Co. No. 14 Lafitte, Sec. 20-17s-24e. Loc.
Texas Co. No. 2-B Madison Realty Co., Sec. 19-17s-24e. T.D. 10,093 ft.; tstg.
Texas Co.'s No. 11 Rigolet Cooperative Fur Co., Sec. 29-17s-24e. Drlg. sh. 7,410 ft.

Lake Hermitage—Plaquemines Parish

Gulf Oil Corp. No. 10 La Fourche Basin Lv. Dist., Sec. 2-18-25e. Drlg. 7,210 ft.

Lake Long—La Fourche Parish

Fohs Oil Co. No. 10 State, 1,320 ft. N of No. 3, in Lake. T.D. 3,208 ft.; twisted off D.S.; sdtrkd. 2,940 ft.; drlg. sdy. sh. 9,017 ft.

Lake Mongoulois—St. Martin Parish

Texas Co. No. 7 State, Sec. 10-10s-9e. T.D. 10,604 ft.; W.O. csg.

Lake Pelto—Terrebonne Parish

Texas Co.'s No. 27 State, Sec. 7-23s-18e. 10¾-in. csg. 1,484 ft.; drlg. sh. 2,610 ft.

Lirette—Terrebonne Parish

Humble O. & R. Co. No. 1 W. E. Mont, Sec. 32-19s-19e. Loc.

New Iberia—Iberia Parish

Acadian Prod. Co. No. 1 Weeks-Sanders, Sec. 51-12s-7e. T.D. 1,277 ft.; 7-in. csg. 1,205 ft.; perf. csg. 1,205-10 ft.; R.U. to pmp.
Canal Oil Co. No. 13 Bernard, Sec. 54-12s-7e. T.D. 4,107 ft.; P.B.; sdtrkd.; T.D. 3,782 ft.; I.P. 440 B.P.D.; ¼-in. ck.
Wm. Helis No. 9 Bolivar, Sec. 56-12s-7e. S.D. 3,402 ft., salt.
Wm. Helis No. 7 J. E. Schwing, Sec. 56-12s-7e. Drlg. sd.&sh. 7,404 ft.
Texas Co. No. 2 Bryant, Sec. 25-12s-7e R.U.
Texas Co.'s No. 11 J. P. Duhe, Sec. 26-12s-7e. R.U.
Texas Co. No. 1 Frances Compton, Sec 71-12s-7e. T.D. 9,034 ft.; 7-in. csg. 8,985 ft.
Texas Co. No. 10 J. P. Duke, Sec. 26-12s-7e. T.D. 3,071 ft.; 7-in. csg. 2,986 ft.; I.P. 272 B.P.D.; 12/64-in. ck.
Texas Co. No. 1 Anna B. Schwing, Sec 71-12s-7e. T.D. 8,993 ft.

North Crowley—Acadia Parish

Humble O. & R. Co. No. 2 Staker, Sec 33-8s-1e. T.D. 8,580 ft.; T. sd. 8,564 ft.; 7-in. csg. 8,580 ft.; perf. csg. 8,576-78½ ft.; tstd. gas; milling on stk. lnr.

North Tepetate—Acadia Parish

Atlantic Ref. Co. No. 5 Klumpp, Sec. 7-7s-1w. T.D. 9,482 ft.; 5¼-in. csg. 9,195 ft.; tried to blow out; P.B. 9,057 ft.; tstg.

Paradis—St. Charles Parish

Texas Co. No. 2 L.L.&E. Paradis, Sec. 6-14s-20e. Bldg. foundation.

Port Barre—St. Landry Parish

Gulf Oil Corp.'s No. 15 Wilson & Cochran, Sec. 4-6s-5e. Drlg. sd.&gvl. 372 ft.
Pan American Prod. Co. No. 7 Cormier, Sec. 4-6s-5e. T.D. 4,933 ft.; P.B. 3,150 ft.; T.D. 4,770 ft.; P.B.; sdtrkd.; drlg. sh. 4,298 ft.
Pan American Prod. Co. No. 8 Cormier, Sec. 4-6s-5e. R.U.
Pan American Prod. Co. No. 3 Haas & Hirsch, Sec. 4-6s-5e. T.D. 7,020 ft.; D.S. stk.; P.B. 6,354 ft.; sdtrkd.; T.D. 7,203 ft.; abd.
Y. D. Spill No. 1 Gaudet, Sec. 4-6s-5e S.D. 4,700 ft.

Potash—Plaquemines Parish

Humble O. & R. Co. No. 39 Orleans Lvee Bd., Sec. 13-8s-15e. T.D. 8,103 ft.; 7-in. csg. 8,099 ft.; flwg. wash wtr. and oil.
Humble O. & R. Co. No. 40 Orleans Lv. Bd., Sec. 13-18s-15e. Comp. canal to loc.

Quarantine Bay—Plaquemines Parish

Gulf Ref. Co. No. 5-A Orleans Lv. Bd., Sec. 7-19s-17e. Drlg. sh. 7,046 ft.
Gulf Oil Corp. No. 9 State QQ, Sec. 18-19s-17e. Loc.
Gulf Oil Corp. No. 13 State, Sec. 8-19s-17e. Drlg. sh. 8,212 ft.

Sorrento—Ascension Parish

Sorrento Synd. No. 1 L. L. Bernard, Sec. 27-10s-4e. Drlg. sh. 2,710 ft.

South Houma—Terrebonne Parish

Shell Oil Co., Inc., No. 1 Duplantis, Sec. 74-18s-18e. Cg. 10,407 ft.

South Roanoke—Jeff Davis Parish

Continental Oil Co. No. 2 Calcasieu Natl. Bnk., Sec. 35-10s-4w. Drlg. sh.&L. 5,881 ft.
Union Sulphur Co. No. 1 Joe Sturdivant, Sec. 36-10s-4w. T.D. 9,413 ft.

Valentine—La Fourche Parish

Pan American Prod. Co. No. 3 Ducas-Abribat. Drlg. 3,036 ft.
Pan American Prod. Co.'s No. 21 Harang, Sec. 9-17s-20e. Loc.

Venice—Plaquemines Parish

Tide Water Asso. Oil Co.'s No. 6 Buras Lv. Bd., Sec. 27-21s-30e. Loc.

Villa Platte—Evangeline Parish

Continental Oil Co.'s No. 4 Orisedeville, Sec. 46-3s-2e. S.D. 1,238 ft.
Continental Oil Co.'s No. 5 Ludeau-Haas, Sec. 45-3s-2e. R.U.
Continental Oil Co.'s No. 2 McDaniel, Sec. 45-3s-2e. Drlg. sh. 5,120 ft.
Continental Oil Co. No. 2 Corell, Sec. 36-3s-2e, Drlg. sh. 8,946 ft.
Continental Oil Co. No. 4 Ludeau-Haas, Sec. 45-3s-2e. T.D. 9,044 ft.; S.D.
Continental Oil Co. No. 4 Opelousas St. Landry Security Co., Sec. 44-3s-2e. T.D. 9,085 ft.; I.P. 345 B.P.D.; ¼-in. ck.
Continental Oil Co. No. 3 Pitre, Sec. 44-3s-2e. S.D. 9,050 ft.
Continental Oil Co. No. 4 Vidrine, Sec. 46-3s-2e. T.D. 9,095 ft.; S.D.

West Gueydan—Vermilion Parish

Magnolia Pet. Co. No. 3 J. B. Ferguson, Sec. 5-12s-2w. 9⅝-in. csg. 1,779 ft.; 7-in. csg. on bttm.; T.D. 7,170 ft.; perf. csg. 6,966-78 ft.; flwg. 10 B.F.P.H., 10/64-in. ck.; 20% wash wtr., 80% oil; T.P. 1,075 lb.; C.P. 1,250 lb.

West Lake Verret—St. Mary Parish

Shell Oil Co., Inc., No. 1 Michel, Sec. 1-14s-12e. Cg. sdy. sh. 8,400 ft.

Woodlawn—Jeff Davis Parish

Union Sulphur Co. No. 1 Raymond Hebert, Sec. 6-9s-5w. T.D. 9,253 ft.; fsg.
Union Sulphur Co. No. 1 M. F. Johnson, Sec. 12-9s-6w. T.D. 9,500 ft.; P.B. 8,612 ft.; sdtrkd.; T.D. 8,905 ft.; 7-in. csg. 8,905 ft.; T.D. 9,500 ft.; P.B. 9,488 ft.; perf. csg. 9,475-87 ft.; swbd. S.W.
Union Sulphur Co. No. 3 Mrs. O'Miller, Sec. 7-9s-5w. Drlg.

S. LOUISIANA WILDCATS

Acadia Parish

Mareaux Oil Corp. No. 2 J. E. Settig, Sec. 17-7s-1w. T.D. 1,180 ft.; S.D.
Tri Parish Drillers, Inc., No. 1 Paul Stag, Sec. 4-7s-1w. M.I. rig.

Allen Parish

Bel Oil Co. No. 2 J. A. Bell Est. (Blue Springs). Drlg.

Avoyelles Parish

C. B. Bunte No. 1 Hines Tie & Timber Co., Sec. 24-3n-2e. 10-in. csg. 475 ft. drlg. sh. 4,622 ft.
G. C Koch et al No. 1 Purdy Hess Lbr. Co., Sec. 25-2n-3e. O.W.D.D.; T.D. 6,054 ft.; W.O. rig.

Beauregard Parish

Atlantic Ref. Co. No. 1 Lutcher Moore, Sec. 22-3s-11w. Loc.
Atlantic Ref. Co. No. 1 Rice Ld. & Lbr. Co., Sec. 22-3s-11w. Loc.

Calcasieu Parish

C. L. Arnette's No. 1 Arthur Welch, Sec. 19-10s-12w. R.U.
La.-Gulf Coast Drlg. Co. No. 1 Langdon, Sec. 13-10s-13w. S.D. 1,890 ft.
Humble O. & R. Co. No. 2 Edgewood, Sec. 32-7s-10w. Drlg. sh. 3,641 ft.

Iberville Parish

Housh & Thompson No. 1 Kessler & Folse, Sec. 40-11s-13e. Cd. sd., sdy. sh. S.S.O.; drlg. sh. 10,611 ft.

Jefferson Parish

California Co. No. 1 Adam Rutley, Sec. 2-16s-23e. 20-in. csg. 163 ft.; 13⅜-in. csg. 1,980 ft.; drlg. 2,410 ft.
Continental Oil Co. No. 1 Bernstein, Sec. 2-16s-23e. Bldg. drk.

Jeff Davis Parish

Union Sulphur Co. No. 2 H. B. Tietje, Sec. 36-2s-4w. Drlg. sdy. sh. 7,900 ft.

La Fourche Parish

Gulf Oil Corp. No. 2 Grandison, Sec. 21-20s-23e. Drlg. sh. 301 ft.
J. Perry Scranton No. 2 Martinez, Sec. 132-15s-17e. T.D. 10,515 ft.; 5-in. csg. 10,150 ft.; perf. csg. 10,124-36 ft.; tstg.
Tide Water Asso. Oil Co. No. 1 Delta Farms, Inc., Sec. 6-17s-23e. Canal comp.

Livingston Parish

Humble O. & R. Co.'s No. 1 Great Southern Lbr. Co., Sec. 27-7s-5e. Drk.

Orleans Parish

W. T. Burton No. 1 L.&N.R.R., Sec. 18-11s-15e. T.D. 10,394 ft.; 5½-in. csg. 10,274 ft.; perf. csg. 10,164-69 ft.; swbd. wash wtr.; drld. out to T.D. 10,300 ft., perf. csg. 10,285-94 ft.; swbd. S.W.; P.B. 10,175 ft.; swbd. oil and showed little gas; reperf. csg. 10,116-24 ft.; well made one head, blowing wash wtr., trace of oil; now swbg.
W. T. Burton No. 3 L.&N.R.R., Sec. 25-11s-14e. Loc.
W. T. Burton No. 2 State-Lake Pontchartrain, Twp. 10s-10e. Loc.
W. T. Burton No. 3 State-Lake Pontchartrain, Sec. 18-11s-15e. Loc.
W. T. Burton No. 4 State-Lake Pontchartrain, Sec. 18-11s-15e. Loc.

Plaquemines Parish

Gulf Oil Corp. No. 8 State P.P., Sec. 18-23s-31e. 13⅜-in. csg. 1,949 ft.; drlg. sh. 6,030 ft.
Texas Co. No. 1 State-Bastian Bay, Sec. 43-20s-28e. 10¾-in. csg. 1,924 ft.; drlg. sh. 6,020 ft.

Rapides Parish

Thos. D. Humphrey No. 1 J. J. Krejzl, Sec. 41-4n-2e. T.D. 5,050 ft.; abd.; T. Wlx. sd. 4,790 ft.
Smith & Aarnes No. 1 Eota Realty, Sec. 12-4n-3e. Drk.

St. Bernard Parish

Carter, Molero & Brian, Sec. 129-14s-14e. Drk.
Gulf Ref. Co. No. 4-State-R.R. (Lake Borgne), Twp. 12s-15e. 9⅝-in. csg. 8,161 ft.; T.D. 10,632 ft.; P.B. 9,700 ft.; rmd. to 9,658 ft.; lost core bbl.; P.B. sdtrkd. 8,912 ft.; T.D. 10,528 ft.; 7-in. csg. 10,494 ft.; milling on csg. 10,225 ft.

St. John the Baptist Parish

Pan American Prod. Co. No. 1 Mill, Sec. 12-11s-7e. (LaPlace prospect). Drlg. 60 ft.

St. Martin Parish

Continental Oil Co.'s No. 1 Leveret, St. John Plantation, Sec. 42-10s-7e. O.W.D.D. T.D. 9,032 ft.; R.U. to dpn.
Wm. Helis' No. 1, Levert, St. John Plantation, Sec. 33-9s-7e. Loc.
Housh & Thompson No. 1 Emile Le Doux, Sec. 57-11s-6e. T.D. 5,842 ft.; abd.
Shell Oil Co., Inc., No. 1 Iberville Ld. Co., Sec. 86-8s-7s. T.D. 1,142 ft.; rmg.
Texas Co. No. 12 St. Martin, Sec. 21-8s-7e. T.D. 9,011 ft.; 7⅝-in. csg. 8,617 ft.; O.S. 8,359-8,442 ft.

St. Mary Parish

Perry S. Cooney No. 1 A. W. Allain, Sec. 46-13s-9e. S.D. 2,600 ft.

St. Tammany Parish

Honey Island Dev. Corp. No. 1 W. C. Forbes, Sec. 33-7s-15e. T.D. 100 ft.; 20-in. csg. 87 ft.

Terrebonne Parish

Continental Oil Co. et al's No. 1 Peters, Sec. 32-19s-15e. Loc.
Shell Oil Co., Inc., No. 1-A Peters, Sec. 47-19s-19e. Drlg. 2,615 ft.
Texas Co. No. 3 State-Coon Point, Twp. 23s-14e. Bldg. foundation.

Vernon Parish

W. T. Burton No. 1 W. T. Burton Mineral fee, Sec. 32-1n-6w. S.D. 9,065 ft.
Nat Hunter et al No. 1 W. T. Burton fee, Sec. 13-2n-5w. T.D. 6,518 ft.; abd.

TEXAS

Week Ending September 2

GULF COAST FIELDS

Old Ocean—Brazoria County

Harrison & Abercrombie No. 6 Armstrong-fee, Polly-Chance Sur. Drlg. sh. &L. 6,897 ft.
Harrison & Abercrombie No. 2 Augsburger, Chas. Breen Sur. Drlg. sd.&sh. 9,420 ft.
Harrison & Abercrombie No. 1 Grimes, C. Breen Sur. Drlg. sd.&L. 10,039 ft.
Mid-Continent Pet. Corp. No. 2 Chenault, C. Breen Sur. Cg. 10,398 ft.
Sun Oil Co. No. 2 Borsodi, C. Breen Sur. T.D. 7,005 ft.; run 9⅝-in. csg.
Sun Oil Co. No. 2 Campbell, Chas. Breen Sur. Drlg. sh.&sd. 10,167 ft.

West Columbia—Brazoria County

Mike Hogg No. 3 Hogg-Hamman, Martin Varner Sur. T.D. 1,915 ft.; R.U. to pmp.

Cedar Point—Chambers County

Standard Oil Co. of Texas' No. 55-118 State. Drlg. sh. 2,630 ft.

Seabreeze—Chambers County

Sun Oil Co. No. 2 Hoffman. T.&N.O. Sur. No. 131. T.D. 8,400 ft.; W.O.C.

Turtle Bay—Chambers County

Stanolind O. & G. Co. No. 1 State. Tr. No. 39. 13⅜-in. csg. 118 ft.; T.D. 6,701 ft.; abd.
Stanolind O. & G. Co. No. 1 H. C. Wilcox, Jamieson Sur. Cd. oil sd. 6,547-55 ft.; 5½-in. csg. 6,569 ft.

Garwood—Colorado County

Davis & Co., Inc., No. 1 J. R. McLane, I.&G.N. Sur. 41. Drlg. sh. 3,404 ft.

Big Creek—Fort Bend County

Merrimac Oil Corp. No. 1 George, B. Wickson Sur. (SW flank). Spd.

Thompson—Fort Bend County

J. H. Blaffer No. 1 Davis, Robt. Peebles Sur. Drlg. sh. 4,240 ft.

Caplen—Galveston County

Sun Oil Co. No. 1 Zinn & Forman, S. F. Hughes Sur. Cg. sd.&sh. 7,186 ft.

Dickinson—Galveston County

Pure Oil Co. No. 1 R. S. Wooten Est., T. W. Johnson Sur. (S. Dickinson area). S.D. 8,657 ft.

League City—Galveston County

Phillips Pet. Co. No. 5 Bertha Lobit Wilson, Perry Austin Sur. T.D. 9,345 ft.; T.D. 9,345 ft.; cmtd. 7-in. csg. 9,340 ft.; perf. csg. 9,226-31 ft.; comp. no ga.
Phillips Pet. Co. No. 1 Dugan, S. F. Austin Sur. T.D. 10,187 ft.; 5½-in. csg. 9,950 ft.
Phillips Pet. Co. No. 1 Dr. O. Patton (1 mi. E of production). Perf. csg. 9,177-97 ft.; flwd. S.W.
Phillips Pet. Co.'s No. 3 Stewart Title Guaranty Co., S. F. Austin Sur. R.U.
Phillips Pet. Co. No. 1 Wimhurst (NW extension). Drlg. sh. 8,620 ft.

Bammel—Harris County

H. M. Harrell's No. 1 Lillian B. Polley, C. G. McLean Sur. T.D. 6,265 ft.; run csg.

Clear Lake—Harris County

Stanolind O. & G. Co.'s No. 1 Coulter, Wm. Dobie Sur. Loc.
Humble O. & R. Co. No. 14-C Humble-West, J. Lindsay Sur. Loc.
Humble O. & R. Co. No. 5 J. C. Hutcheson, Wm. Dobie Sur. Drlg. sh. 6,130 ft.

Clinton—Harris County

International Pet. Corp.'s No. 1 J. B. Means, Patrick Reels, John Trobough Sur. Loc.
Stanolind O. & G. Co. No. 2 Edwards, Reels & Trobough Sur. Drk.

Fairbanks—Harris County

Union Prod. Co. No. 1 H. H. Rudley, T. M. Dorsett Sur. (North Houston area). Cmtd. 13⅜-in. csg. 1,477 ft.; rec. oil and brksh. wtr. on D.S.T. 7,015-24 ft.; tstd. S.W. and gas 7,016-24 ft.; T.D. 7,251 ft.; perf. csg. 7,015-24 ft.; tstd. S.W.; gas; killed.
Union Prod. Co. No. 10 Whitehead-Rash-Phillips, Wiley S. Powell Sur. T.D. 7,224 ft.; T.S. 7,208 ft.; prep. to test.

Friendswood—Harris County

Humble O. & R. Co.'s No. 1 M. A. Pendarvis, Thos. Choate Sur. Drlg. sh. 3,820 ft.

South Houston—Harris County

Stanolind O. & G. Co. (Commerce) No. 1 O. R. Staiti, Callahan & Vince Sur. T.D. 7,572 ft.; cmtd. 7-in. protection csg.; T.D. 9,470 ft.; perf. csg. 7,553-65 ft.; flwd. oil, gas, and S.W.; killed.

Vanderbilt-West Ranch—Jackson County

Humble O. & R. Co. No. 1 Vanderbilt-State. T.D. 5,674 ft.; perf. csg. 5,500-05 ft.; I.P. 19 B.P.H.; ¼-in. ck.

Fannett—Jefferson County

Gulf Oil Corp.'s No. 12 Burrell, W. H. Smith Sur. Drlg. sh. 896 ft.

La Belle—Jefferson County

Sun Oil Co. No. 5 Broussard-Hebert, T. &N.O. Sur. No. 207. T.D. 8,710 ft.; perf. csg. 8,685-90 ft.; flwd. S.W.; made sqze. job.

Lovells Lake—Jefferson County

Humble O. & R. Co. No. 3 Todd, Wm. Carr Sur. T.D. 7,817 ft.; P.B. 7,725 ft.
Humble O. & R. Co. No. 2 W. C. Turner, Wm. Carr Sur. Rigging.
Shell Oil Co., Inc., No. 2 Pleasant C. Hillebrandt Sur. T.D. 7,800 ft.; tstg.
Stanolind O. & G. Co.'s No. 1 B. A. Steinhagen, Wm. Carr Sur. Loc.

South China—Jefferson County

Magnolia Pet. Co. No. 1 Broussard, H.& T.C. Sur., Sec. 18. T.D. 7,826 ft.; oil sd. 7,793-7,807 ft.; perf. csg. 7,803-10 ft.; flwd. 37 B.F.P.H.; various cks.; 90% dist., 10% S.W.

Esperson—Liberty County

General Crude Oil Co. No. 4-B Esperson.

LEGAL

PLEASE TAKE NOTICE that pursuant to an agreement dated January 26, 1939, between Ark-La-Tex Oil Company Limited and the undersigned, as Trustees, we as such Trustees will sell at auction all the right, title and interest that said Ark-La-Tex Oil Company Limited had in certain oil and gas leases under approximately 685.47 acres of land in Fort Bend County, Texas, including the interest of Research Incorporated in said leases; a 5/6ths interest in 40 acres in Harris County, Texas, and 100 acres in Waller County, Texas, subject to a 12½% interest in the profits under said latter two leases. In addition, there will be similarly sold 3/16ths of a 1/8th royalty interest covering 75 acres in Fort Bend County, Texas. The sale is to take place at the office of Charles P. Franchot, Room 1636, 00 East 42nd Street, New York, N. Y., at 11:00 A.M. Eastern Daylight Saving Time on September 22, 1939. The undersigned reserves the right to reject any and all bids that may be submitted.

A summary description of the property will be furnished upon request. Copies of the respective leases containing more detailed descriptions and the pertinent terms thereof are on file with the undersigned and may be examined at any time before the sale at the place of sale aforementioned.

CHARLES P. FRANCHOT
EDWARD N. CHILSON
As Trustees.

A. McNeil Sur. T.D. 7,608 ft.; P.B. 7,-318 ft.; tstg.
General Crude Oil Co.'s No. 6-B Esperson, A. McNeil Sur. Drlg. sh. 3,036 ft.
General Crude Oil Co.'s No. 8-B Esperson, A. McNeil Sur. M.I.R.

Hardin—Liberty County

Gulf Oil Corp. No. 4 Cessna, H. B. Johnston Sur. R.U.
Humble O. & R. Co. No. 6-B Partlow, H. B. Johnston Sur. Drk.

Hull—Liberty County

Gulf Oil Corp. No. 115 Phoenix Dev. Co., J. Devore Lge. (SE flank deep test). Drlg. sh.&L. 5,963 ft.

Martha—Liberty County

Stanolind O. & G. Co. No. 1 C. F. Seaberg, I.&G.N. Sur. No. 7. Cd. oil sd. 8,085-92 ft.; sh.&sd. gas odor 8,092-8,114 ft.; 5½-in. csg. 8,114 ft.; perf. csg. 8,088-92 ft.; flwd. 250 bbl. P.L.O.; 16 hrs.; ¼-in. ck.

Hamman—Matagorda County

Atlantic Ref. Co. No. 1 Glover, J. T. Belknap Sur. (east extension). T.D. 9,358 ft.; perf. csg. 9,180-9,210 ft.; flwd. dist.; started making S.W.; sqzd. to reperf.; tstg.
J. M. Copeland No. 1 G. L. Butler, J. T. Belknap Sur. Loc.

Van Vleck—Matagorda County

Skelly Oil Co. No. 5 Henry Rugeley, I.&G.N. Sur. Drlg. 8,250 ft.

Orange—Orange County

John Mayo No. 1 M. J. Williams, Dyson Sur. R.U.

Port Neches—Orange County

Texas Co. No. 16 Kuhn, M. E. Hall Sur. R.U.

Ace—Polk County

Dick Schwab No. 1-C Kirby-West Lbr. Co., G. A. Thompson Sur. Loc.
Shell Oil Co., Inc.'s No. 1 Kirby-West Lbr. Co., G. S. Thomas Sur. R.U.

Segno—Polk County

Gulf Oil Corp. No. 4 Quinn, A. Morales Sur. R.U.

LEGAL

United States Department of the Interior, General Land Office, Washington, D. C. Notice is hereby given that leases of the oil and gas deposits in the following lands in the State of Louisiana are offered to the responsible qualified bidder of the highest bonus per acre, pursuant to the provisions of section 17 of the leasing act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate scale in the lease form shown in circular 1386, at a sale to be held in the Federal Court Room, Post Office Building, Shreveport, Louisiana, at 10:00 o'clock on September 27, 1939: Carterville field, lot 2 Sec. 2, lot 4 Sec. 4 and lots 3 and 4 Sec. 5, T. 22 N., R 11 W., SE¼ NW¼ Sec. 31, T. 23 N., R. 11 W., La.M., 99.77 acres; Rodessa oil and gas field, SW¼ NE¼ Sec. 2, T. 23 N., R. 16 W., La.M., 27.96 acres; Simsboro gas field, E½ NW¼ Sec. 9, T. 17 N., R. 4 W., La.M., 80 acres; Shongaloo oil and gas field, NE¼ SW¼ Sec. 7, T. 22 N., R. 9 W., La.M., 38.42 acres; Lake Bistineau gas field, S½ SW¼ Sec. 18, NW¼ SE¼ Sec. 22, T. 16 N., R. 10 W., La.M., 120 acres; Elm Grove oil and gas field, lots 6, 7 and 8 Sec. 36, T. 16 N., R. 12 W., La.M., 48.52 acres; Pine Island oil field, E½ NE¼ Sec. 10, T. 21 N., R. 15 W., La.M., 79.94 acres; Vivian oil and gas field, SE¼ SE¼ Sec. 28, T. 22 N., R. 15 W., La.M., 39.98 acres; Caddo oil and gas field, Unit No. 1—S½ NE¼, W½ SE¼ Sec. 31, T. 20 N., R. 15 W., 160 acres, Unit No. 2—lot 3 Sec. 3, lots 3, 4, 5, Sec. 4, T. 20 N., R. 16 W., 37.79 acres, Unit No. 3—lots 5 and 6 Sec. 9, lots 7, 9, 10 Sec. 10, lots 1 and 2 Sec. 15, lot 1 Sec. 16, T. 20 N., R. 16 W., 176.20 acres, Unit No. 4—lot 1 Sec. 12, lot 1 Sec. 13, T. 20 N., R. 16 W., 49.69 acres, Unit No. 5—Sec. 20, all (fractional), T. 20 N., R. 16 W., 37.83 acres, Unit No. 6—lots 1 and 3 Sec. 32, T. 20 N., R. 16 W., 91.56 acres, Unit No. 7—lot 1 Sec. 25, lots 1 and 2 Sec. 36, T. 20 N., R. 16 W., 22.71 acres, Unit No. 8—SE¼ Sec. 9, T. 21 N., R. 16 W., 160.20 acres, Unit No. 9—E½ SE¼ Sec. 11, N½ SW¼, NW¼ SE¼ Sec. 12, T. 21 N., R. 16 W., 200.44 acres, all La.M. Two or more units may be consolidated in a single lease to the same qualified bidder, provided the acreage does not exceed the maximum prescribed by law. The successful bidder must deposit on the day of the sale a certified check on a solvent bank, or cash, for one-fifth of the amount of each bid and file the showing of qualifications to receive a lease required by section 7 of General Land Office Circular 1386. The remaining four-fifths, together with the annual rental in advance at the rate of $1 per acre, must be paid, and a $5000 corporate surety bond must be furnished, prior to the issuance of the lease. The bidders are warned against violation of the provisions of section 59 of the United States Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. (Sgn) Fred W. Johnson, Commissioner.

Gulf Oil Corp.'s No. 1 W. G. Wing, I.& G.N. Sur. No. 15. Drlg. sh. 7,636 ft.
Gulf Oil Corp.'s No. 20 Wing, I.&G.N. Sur. No. 14. Drlg. sh.&L. 5,030 ft.
Humble O. & R. Co. No. 13-B Kirby Lbr. Co., P. Garcia Sur. T.D. 8,192 ft.; comp.; S.I.; no ga.
Humble O. & R. Co. No. 15-B Kirby Lbr. Co., P. Garcia Sur. Drlg. sh. 7,320 ft.

Spurger—Tyler County

Republic Prod. Co. No. 22 fee, N. Hurd Lge. T.D. 9,014 ft.; 7-in. csg. 7,770 ft.; perf. csg. 7,698-7,708 ft.; comp.; making pot. test.
Republic Prod. Co.'s No. 24 fee, N. Hurd Sur. R.U.

GULF COAST WILDCATS

Brazoria County

Fabriguze et al No. 1 Freeport Sulphur, Stephen F. Austin Sur. (Byran Mound). M.I.M.
Hamman Expitn. Co. No. 1-B Darrington, State Prison Farm, F. Bingham Sur. Rig.
Glenn McCarthy's No. 1 J. C. Carr, J. D. Valderas Sur. Drlg. sh. 10,010 ft.
Glenn McCarthy No. 1 Houston Farm Dev., James F. Perry and E. Austin Sur. No. 7. T.D. 10,380 ft.; set 7-in. csg.; well is reported to be showing oil under small gas pressure; no details.

Chambers County

Geo. Anderson No. 1 Julia Casey, W. D. Smith Sur. Loc.
Edwards Drlg. Co.'s No. 1 Sloan, G. B. Jamison Sur., Turtle Bay extension area. Loc.
Salt Dome Oil Corp. No. 1 Ira R. Williams, James Grant Sur. (Cotton Lake area). T.D. 6,515 ft.; 5½-in. csg. 6,515 ft.; perf. csg. 6,506-11 ft.; well flwd. 24 B.P.D.; ¾-in. ck.
J. R. Turnbull et al No. 1 W. C. Shepherd, R. A. Porter Sur. T.D. 6,466 ft.; 7-in. csg. 6,429 ft.; flwd. oil, gas, and wash wtr.; sanded up; sdtrkd. 6,463 ft.; drlg. sh. 6,615 ft.

Colorado County

Cockburn Oil Corp. No. 1 R. W. Ferris, H. Chrisman Sur. Loc.
Strake Pet. Co. No. 1 Ned Burford, E. Tumlinson Sur. 10¾-in. csg. 998 ft.; drlg. sdy. sh. 4,260 ft.

Fort Bend County

H. C. Cockburn No. 1 Dzierzanowski, Emma Meyer Sur. 8. 10¾-in. csg. 1,-058 ft.; drlg. sh. 3,338 ft.
H. R. Cullen No. 1 Booth, Wickson Sur., S flank Big Creek. Drlg. sh. 6,194 ft.
Lloyd Farr et al No. 1 Beard, H.&T.C. Sur. 118. Drlg. gbo. 2,003 ft.
Superior Oil Co. No. 1 Kelso, G. Barth Sur. Drlg. sh. 4,912 ft.
Woodland Oil Co. No. 1 Herietta Berg et al, H.&T.C. Sur., Sec. 25. T.D. 7,-410 ft.; 9⅝-in. csg. 7,391 ft.; P.B. 7,-269 ft.; top junk 7,245 ft.; set whpstk. 7,239½-47 ft.; unable to sdtrk.; T.A.

Harris County

Selby O. & G. Co. No. 1 East Texas Oil Co., Victor Blanco Sur. 10¾-in. csg. 1,495 ft.; drlg. sh.&sd. 4,512 ft.
L. R. Wilhite et al No. 1 Houston-Harris Co. Ship Channel, Nav. dist., Ezekiel Thomas Sur. 13-in. csg. 388 ft.; drlg. plug.

Jackson County

Cron & Gracey's No. 2 Heard, M.&C. Sur. 13. Drlg. sh. 3,667 ft.

Jefferson County

I. E. Harwell No. 1 State, Gulf of Mexico. T.D. 5,840 ft.; D.S. stk.; pulled in two; S.D.

Montgomery County

A. T. Grabowski et al's No. 1 Gay, Wm. Landrum Sur. Drk.

Orange County

American Eagle Oil Co. No. 2 Geo. Pell, Geo. A. Patillo Sur. Loc.

Polk County

Patrick-Tyrell Drlg. Co. No. 1 O. L. Jackson, C. Devore Sur. Loc.

San Jacinto County

F. J. Hynes No. 1 Foster Lbr. Co., M. Brown Sur. Rig.
F. J. Hynes No. 2 Foster Lbr. Co., M. Finch Sur. Loc.

Trinity County

W. B. Gossage No. 1 Trinity State Bnk., B. F. Wright Sur. R.U.

Tyler County

J. C. Bonham No. 3 Kountze, E. Smith Sur. (1 mi. NE of Rockland). T.D. 417 ft.; abd.

Washington County

Mount Selman Oil Co. No. 1 Fritz Fuelberg, W. Lightfoot Sur. M.I.R.

Wharton County

Humble O. & R. Co.'s No. 1 Joe Schwartz, T. M. Blake Sur. 10¾-in. csg. 1,432 ft.; drlg. sh. 2,800 ft.
Dr. T. M. Neal No. 1 fee, Elisha Flack Sur. Loc.
W. Stewart Boyle et al's No. 1 Britton, F. Page Sur., N of Louise field. Drlg. sh. 3,718 ft.
Texas Co. No. 1 C. Peters, E.T.R.R. Sur. No. 101 (Hilje area). 10¾-in. csg. 1,-163 ft.; T.D. 5,300 ft.; run 5½-in. csg.; 11-min. D.S.T. 5,231-59 ft.; tstd. 590 lb. press.; rec. 180 ft. fluid, 90 ft. oil, 90 ft. S.W., trace of oil; P.B. 5,243 ft.; perf. csg. 5,237-42 ft.; swbg. wash wtr.; no show oil or gas.

S. W. TEXAS WILDCATS

Bastrop County

Ralph Ogden No. 1 Wolf, S. Wolfenberger Sur. Drlg. Buda L. 2,860 ft.

Bee County

Gust Tsesmelis No. 1 O. F. West, James Douglass Sur. T.D. 6,005 ft.; abd.

Bell County

G. P. Shelton et al No. 1 Nelson, Michael Griffin Sur. S.D. 1,208 ft.

Bexar County

C. A. Smith's No. 1 W. G. Schuwirth, Jose Antonio de la Garza Sur. Drlg. 50 ft.
J. A. Tarver's No. 1 Florence Lam, Manel de Luna Sur. 3. Drlg. sh. 812 ft.

Caldwell County

Dr. J. F. Atha's No. 1 G. W. Carter, Gideon Pace Sur. Spd.

Calhoun County

Continental Oil Co. No. 1 Betty Rosen, Juan Carro Lge. (2½ mi. W of Indianola). Drlg. sh. 5,026 ft.
Coronado Corp. No. 1 K. Welder, Hidalgo Sur., 3 mi. SE Seadrift. Rig.

De Witt County

Marshall Purvis No. 1 Afflerback, L. W. Criswell Sur. Drlg. sh. 6,386 ft.

Duval County

W. L. Catlin et al No. 1 Louis Escapule, J. Poitevent Sur. No. 73. Loc.
Clark & Cowden's No. 1 Lucille Gruy, N. Gussett Sur. 28. Drlg. sh. 1,886 ft.
Sam Cunningham et al's No. 1 E. A. Lopez, P. Caballero Sur., Sec. 14. Drlg. sdy. sh. 306 ft.
Hiawatha O. & G. Co. No. 16 Southland Life Ins. Co., Santos Flores (Southland field). Cd. sd. 4,467-4,715 ft.; T.D. 5,-923 ft.; P.B. 5,320 ft.; perf. csg. 5,300-08 ft.; flwg. gas, show of dist.; 5/32-in. ck.
Howell & Hawkins No. 1 V. Garcia, C. I. Co. Sur. No. 572 (Chiltipin area). T. sd. 4,749 ft.; T.D. 4,860 ft.; 5½-in. csg 4,849 ft.; perf. csg. 4,802-15 ft.; flwg. gas.
Lanning & Coffield's No. 1 R. Lopez, J. Poitevent Sur. 455. Drlg. 852 ft.
Magnolia Pet. Co.'s No. 1 D.C.R.C., B.S. &F. Sur. 262. R.U.
G. L. Rowsey et al No. 1 Parr. S.A.&M. G.R.R. Sur., Sec. 117. Cg. sh. 4,743 ft.
South Coast Oil Corp., et al's No. 1 F. G. Garcia, H.&G.N. Sur. Loc.
Standard Oil Co. of Texas' No. 1 Jack Casey, San Pedro de Charco Redondo gr. Loc.
Taylor Ref. Co. No. 1 Parr, S.A.&M.G. Sur. 117. Drlg. sh. 3,584 ft.

Edwards County

R. G. Mitchell No. 2 Turney, C.C.S.D. and R.G.N.G. Sur., Sec. 164. Loc.

Falls County

M. A. Hays No. 1 Wooten, James Powell Sur. T.D. 2,138 ft.; P.B. 2,133 ft.
J. Shaunfield No. 1 Barganier, J. M. Graham Sur. T.D. 1,195 ft.; Buda L.; S.S.O.; waiting on csg.

Goliad County

D. C. Matthews et al's No. 1 G. J. Swickheimer, Cuadrilla Irrg. Sur. R.U.
John Mayo No. 1 Swickheimer, Sec. 20, Cuadrillo subd., Wm. Patterson Sur. 9 mi. E of Goliad). Loc.

Gonzales County

E. E. Young No. 1 Moore, D. O. Warren Sur. S.D. 43 ft.

Guadalupe County

Burton-Garvin & Womack's No. 2 Henry Well, E. de Los Santos Coy Sur. No. 93. R.U.
Dees et al No. 1 Broadnax, John C. King Sur. Drlg. L. 2,149 ft.

Hays County

B. C. Mann et al No. 1 Reeder, R. Vaughn Sur. Drlg. L. 1,250 ft.

Hidalgo County

San Juan Oil Co. No. 1 J. C. Kelly, J. C. Kelly subd., Antonio Velasco Sur., Porc. 70. Rig.

Jim Hogg County

W. L. Goldston's No. 1 E. G. Canales, Marcelo Ynojosa gr. Loc.
Imperial Oil Co. No. 1 Jose M. Gutierrez, H. Rodriquez Sur. 142. T.D. 790 ft.; abd.

Jim Wells County

Austin Pet. Co. No. 1 H. M. Reed (8 mi. NW Orange Grove), J. Poitevent Sur. Cmtd. surf. pipe 190 ft.; S.D. 210 ft.
Tom Graham et al's No. 1-A Shaffer, Stanley Welch Sur. Drlg. sdy. sh. 1,-650 ft.
Loring Bradstreet No. 1 Rehment, Lot 12, Morro Phillips Sur. T.D. 5,271 ft.; abd.
Heyser & Heard No. 1 Clara Driscoll, La Anima Solo gr. (SW of Ben Bolt). T.D. 7,037 ft.; abd.
Magnolia Pet. Co. No. 1 J. O. Maun, Lot 6, Blk. 11. 7-in. csg. 6,811 ft.; cg. sdy. sh. 7,237 ft.
Magnolia Pet. Co.'s No. 1 E. H. Stolze et al, Los Olmos y Loma Blanca gr., Lot 16, Blk. 10. Loc.
Wm. Spice's No. 1 J. Schallert, Los Presenos de Abajo gr. Drlg. sh. 4,729 ft.
Rodney DeLange et al's No. 1 Maggie McNeill, Benito Lopez de Jean gr. R.U.
Royal O. & G. Co.'s No. 1 P. Garcia, La Trinidad gr. Drlg. sh. 835 ft.

Kendall County

C. M. Dewey No. 2 Seidensticker, R. Davis Sur. No. 20. S.D. 714 ft.

Kimble County

W. S. Kelly No. 1 A. L. Bierchwale, D. Lloyd Sur. S.D. 135 ft.
C. H. Wolff & M. C. Moore No. 1 W. J. Wilkinson, Brook & Burleson Sur., Sec. 24. S.D. 20 ft.

La Salle County

S. J. V. Oil Co.'s No. 1 Louis Yeager, C Blk. 4, Sec. 4. Drlg. 380 ft.

Lee County

Fred Pedersen et al No. 1 Brown, David Hudson Sur. Pmpd. 100 B.F.; 36 hrs.; 3 bbl. oily emulsion; cd. L. 6,461-90 ft.; T.D. 6,571 ft.; S.D.

Live Oak County

Salviejo Oil Co. No. 1 Reser, Amos Moore Sur. Sd. 2,128-48 ft.; cmtd. 7-in. csg. 2,129 ft.; T.D. 3,010 ft.; run lnr. to approx. 2,900 ft.; perf. csg. 2,478-83 ft.; rec. 440 ft. drlg. wtr. and S.W.; press. built up to 1,000 lb.; S.D.
L. W. Stieren No. 3 Lange, Thos. Adams Sur. T.D. 1,497 ft.

McMullen County

C. D. Scarborough No. 1 First Natl. Bk. of Rosebud, James Garner Sur. S.D 43 ft.

Medina County

Elstone Oil Co.'s No. 1 Wm. Mann, J. Campbell Sur. No. 24. R.U.

Milam County

M. B. Cloud's No. 1-B Henniger, S. C. Robertson Sur. R.U.

Nueces County

John Manley et al No. 1 Ruegg, Geo. H. Pauls subd. of Driscoll ranch. Loc.
Premont Pet. Co.'s No. 1 G. A. Langham, Los Sauces gr., Lot 12, Sec. 25. Drlg. sh. 4,529 ft.
E. A. Graham et al's No. 1 Sam Taylor, D. M. Oliver Sur. Drlg. sh. 6,150 ft.
Renwar Oil Corp. et al's No. 1 J. B. Knight, Sec. 175, Palo Alto gr. 10¾-in. csg. 1,007 ft.; drlg. sh. 6,150 ft.
Renwar Oil Corp. No. 1 Wright, J. V. L. De Herrera gr. (Riverside area). Drk.
Texas Conservative Oil Co. No. 1 J. B. Rutland, Geo. H. Pauls subd. of Driscoll ranch. Tstd. S.W. on D.S.T. 6,696-6,715 ft.; abd.
Union Prod. Co. No. 1 W. H. Wallace, Sec. 88, Pauls subd. 9⅝-in. csg. 5,-510 ft.; T.D. 7,250 ft.; 7-in. csg. 6,840 ft.

Refugio County

Humble O. & R. Co.'s No. 5 Thomson, Maximo Gomez Sur. Drlg. sh. 4,285 ft.

LEGAL

United States Department of the Interior, General Land Office, Washington, D. C. Notice is hereby given that the 1913.99 acres in the producing Hugoton gas field in Ts. 31 and 32, R. 38; Ts. 32 and 35, R. 39; Ts. 32 and 33, R. 40, all south and west of the 6th P.M., Kansas, in Stevens and Morton Counties, and in T. 4., Rs. 14 and 15; Ts. 3, 4 and 6, R. 16, all north and east of C.M., Oklahoma, in Texas County; and 520 acres in the Holcomb gas field described as the SW¼ NE¼ Sec. 3, SW¼ Sec. 12 and N½ Sec. 15, T. 26 S., R. 35 W., 6th P.M., Kansas, are offered to the qualified bidder of the highest amount offered per acre as a bonus for a lease to the oil and gas deposits belonging to the United States, pursuant to Section 17 of the act of February 25, 1920 (41 Stat. 437), as amended by the act of August 21, 1935 (49 Stat. 674), at the royalty rate shown in the lease form in General Land Office circular 1386. Sealed bids are to be submitted to the Secretary of the Interior, Washington, D. C., the envelope to be marked plainly "Bid—Hugoton and Holcomb gas fields lease sale," on or before noon on September 27, 1939. Full particulars governing the sale and conditions upon which the leases will be issued may be secured from the Commissioner of the General Land Office, Washington, D. C. The bid must describe the land and be accompanied by a certified check upon a solvent bank, or cash, for one-fifth of the amount of each bid, and a showing that the bidder is qualified to receive a lease (see section 7 of circular 1386). The remaining four-fifths of the bid, together with the annual rental in advance at the rate of $1.00 per acre, must be paid and a $5,-000.00 corporate surety bond must be furnished prior to the issuance of the lease. Bidders are warned against violations of the provisions of section 59 of the United States Criminal Code approved March 4, 1909, prohibiting unlawful combination or intimidation of bidders. The right is reserved to reject any and all bids at the discretion of the Secretary of the Interior. (Sgn) Fred W. Johnson, Commissioner.

Norsworthy Prod. Co. No. 1 Wood, John Sinnott Sur. Drlg. sh. 4,060 ft.

San Patricio County

Seaboard Oil Co.'s No. 1 M. C. Smith, Juan Hart & Sons Sur. Spd.

Republic Nat. Gas Co. No. 1 Galler, Sec. 26 (E. Plymouth area). T.D. 6,037 ft.; run 5½-in. csg. to test at 5,175 ft.; perf. csg. 5,111-13 ft.; flwg. gas and dist.; ¼-in. ck.

Texas Gulf Prod. Co. No. 1 Hollan, McAuley Lge., Blk. 6 (1¼ mi. SW Sinton). Cg. sh. 6,670 ft.

Wellington Oil Co. No. 6 Welder, Hart Sur. (Angelita). Drlg. 6,920 ft.

Starr County

Hebert Aid's No. 1 Desidero Vera, Jose F. Garza Sur. Cg. sh. 866 ft.

Banks, Miller Oil Co.'s No. 1 McLean, Unit 3, Valle Del Rico Rio Grande subd., J. B. Villareal Porc. S.D. 2,756 ft.

C. L. Foster's No. 1 H. Garza, Juan Salinas, Porc. No. 71. S.D. 100 ft.

Liberty Oil Co. No. 1 Bass, S.K.&K. Sur No. 71. T.D. 1,786 ft.; abd.

Lynes & Robertson's No. 1 Villareal, C. C.S.D.&R.G.N.G.R.R. Sur. 241. Loc.

Magnolia Pet. Co. No. 1 Zaguire (Cuevatas area). Drlg. sdy. sh. 4,785 ft.

Rowan & Hope, Inc.'s No. 1 Dallas Joint Stock Ld. Bnk., G. Silvas Sur. T.D. 4,506 ft.; abd.

Verne Clopton's No. 1 Lee M. Green, J. J. Garza Falcon, Porc. 81, Lot 7, Sh. 85. R.U.

Travis County

Burns Oil & Co.'s No. 1 Lundergren, Henry Martin Sur. 65. S.D. 512 ft.

Victoria County

Trinity Drillers et al's No. 1 T. G. Edwards, L. Rodriquez Sur. Drlg. 65 ft.

Tom L. Gunter et al No. 1 Dietzel (3 mi. E of Coletto Creek field). Rig.

John Mayo and Trinity Drillers, Inc.'s No. 1 Vogt (2 mi. S Victoria). T.D. 5,323 ft.; P.B.; perf. csg. 2,552-55 ft.; flwg. gas, spray; kill well; pulling lnr.; S.D.

Renwar Oil Co. et al's No. 1 Weaver. 10¾-in. csg. 456 ft.; T.D. 6,010 ft.

Geo. E. Smith's No. 1 J. E. Stubbs, R. Manchola Sur. R.U.

Stanolind O. & G. Co. No. 7 Vandenberge (Placedo). T.D. 3,965 ft.; P.B. to sdtrk at 3,896 ft.

Webb County

W. C. McBride, Inc., et al's No. 1 Vela, Josefa Cuellar gr. Drlg. sh. 1,150 ft.

J. M. Anderson et al No. 1 Frost, C.C.S. D.&R.G.N.G.R.R. Sur. No. 17. Loc.

G. W. Basom's No. 1 Henry Adami, H. &G.N.R.R. Sur. No. 335. T.D. 1,278 ft. no report.

Locke Purnell's No. 1 A. E. Gates, C.C. S.D.&R.G.N.G.R.R. Sur. No. 21. T.D. 1,709 ft.; abd.

Tide Water Asso. Oil Co. No. 7 Bruni, Blk. 7, M. Arispe gr. (deep test Bruni field). T.D. 5,002 ft.; prep. to drill ahd.

Zapata County

Joe Martinez No. 2 Bruni, J. V. Borrego gr. S.D. 355 ft.; rig moved from loc.

WEST TEXAS WILDCATS

Brewster County

H. D. Wilcox's No. 2 Kokernot, Sec. 23, Blk. C, J. V. Massey Sur. S.D.O. 1,505 ft.

Cochran County

Humble O. & R. Co. No. 1 J. Westheimer, Lab. 1, Lge. 146, Stonewall Co. Sch. Ld. W.O.C. 3,690 ft.

Crane County

Gulf Oil Corp. No. 5 M. B. McKnight Sec. 1, Blk. 21-B, P.S.L. Sur. Drlg. out 4,922 ft.; T.D. 4,980 ft.

Magnolia Pet. Co. No. 21 Hardewick-Univ., Blk. 30, Sec. 27, University Sur. (Extension). W.O.C. 957 ft.; T.D. 1,295 ft.

Crockett County

J. S. Pittman No. 1 Corbett-Humble, Sec. 15, Blk. 2-B, G.C.&S.F. Sur. D.&A. 2,502 ft.

Crosby County

Gulf Oil Corp. No. 1-C Swenson, Sec. 95 Blk. 2, H.&G.N. Sur. Trying to free D.P. 6,926 ft.

Dawson County

Ray Albaugh No. 1 Dewey Hogg. T.D. 4,125 ft.; S.D.; may D.D.

Hoard
Exploration Co.
Seismograph Surveys
618 Esperson Bldg.
Houston - - Texas

Ector County

J. D. Bodkins No. 1 H. F. Foster, Sec. 12, Blk. 43, T.&P. Sur. T.D. 4,500 ft.; prep. abd.

R. H. Gill No. 1 J. E. Parker, Sec. 12, Blk. 45, T.&P. Sur. W.O.R. 145 ft.

Sloan & Zook No. 1 J. L. Johnson, Sec. 34, Blk. 43, T.&P. Sur. P.B. 4,167 ft.; tstg. 24 B.O.P.D.; P.B. 4,167 ft.; C.O.

El Paso County

Tri-State Oil Co.'s No. 1 Kimble, Sec. 237, A.T.&S.F.R.R. Sur. U.R. csg. 2,060 ft.; drld. out to 2,103 ft. after freed tools.

Gaines County

Ohio Oil Co. No. 1 W. L. Gibbs, Sec. 270, Blk. G, W.T.R.R. Sur. Drlg. 1,811 ft.

Stanolind O. & G. Co. No. 1 J. B. Rayner, Sec. 3, Blk. 30-C, P.S.L. Sur.; 6,000-ft. test. Drld. 39 ft. of sat. out of a 104-ft. sec. from 4,661-4,765 ft.; made 60 bbl. in 30 min.; air-lift; enc. sulfur wtr. at 4,830 ft.; P.B. 4,783 ft.; flwd. 237 B.O.P.D. with 40 B.W.; prep. P.B. again.

Glasscock County

J. R. Petty No. 1 Joe Blake, Sec. 163, Blk. 29, W.&N.W. Sur. D.&A. 1,681 ft.

Howard County

F. H. E. Oil Co. et al No. 2 D. H. Snyder, Sec. 21, Twp. 1s, Blk. 30, T.&P. Sur.; (extension). Drlg. 1,610 ft.

M. L. Richards No. 1 Read, Sec. 36, Blk. 30, T.&P. Sur. Drlg. 830 ft.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ Sec. 34, Blk. 74, Twp. 6. S.G. 6,340-45 ft.; T.D. 6,402 ft.

Haymon Krupp No. 1 Briggs, Sec. 24, Blk. 73, Twp. 7, T.&P. Sur. S.D. 6,015 ft.

Irion County

P. I. Fox et al No. 1 J. M. Nutt, Sec. 5, Gonzales C.S.L. Drlg. 335 ft.; no report.

Lynn County

John L. Baldridge No. 1 Alma Lbr. Co., Sec. 151, H.E.W.T. Sur. Pulled 5-in.; drlg. out cmt.

McCulloch County

A. E. McMillan No. 1 Nat Randall, A. M. Waldrip Sur., Sec. 146. 1,485 ft. est. 1,250,000 cu. ft. gas; drlg. 1,643 ft.

Pecos County

Lloyd-Penn & Hargraves No. 1 H. E. Bonebrake, Sec. 110, Blk. 8, H.&G.N. Sur. W.O.C. 7-in. 1,080 ft.

Magnolia Pet. Co. No. 1 W. I. Masterson, Sec. 10, Blk. 10, H.&G.N. Sur (Offset S to Apco discovery). Prep. run csg. 4,614 ft.; enc. some free oil at 4,598-4,614 ft., T.D.

Rockdale Oil Co. No. 1 A. Sullivan, Sec. 72, Blk. 10, H.&G.N. Sur. S.D. 25 ft.; repairs.

Stanley Thompson No. 1 Elsinore Cattle Co., Sec. 54, Blk. D, G.C.&S.F. Sur. No report; 7,342 ft.

Superior Oil Co. No. 1 V. W. Crockett-Continental Oil Co., Sec. 7, Blk. 110, T.C.R.R. Sur. C.&P.

Presidio County

Marfa Oil Co. No. 1 Fischer ranch, Sec. 31, Blk. 8, G.H.&S.A. Sur. M.I.M.

Reeves County

Artie Baker No. 1 J. W. Grider, Sec. 31, Blk. 58, P.S.L. Sur. S.D.R. 450 ft.

Forest Development Corp. No. 1 I. E. Scott, Sec. 286, Blk. 13, H.&G.N. Sur. Cmtd. 8⅛-in. csg. 3,702 ft.; free oil at 4,840-55 ft.; prep. cmt. csg. for test.

Runnels County

G. U. Phillips et al's No. 1 W. J. Fowler, SW¼ Sec. 150, E.T.R.R. Sur. S.D 1,425 ft.; csg.

Homer Price et al's No. 2 J. C. Beddo, Blk. 51, Diaz Sur. No. 532. S.D. 2,365 ft.

Terrell County

Shirley, Lanham & Blakeney No. 1, Sec. 45, Blk. 2-B, C.C.S.D.&R.G.N.G. Sur.; 2,500-ft. test. S.D. csg. 268 ft.

E. M. Thomasson No. 1 Bates, Sec. 31, Blk. 1, H.&G.N. Sur. M.I.M.

Tom Green County

Dane Elder No. 1 DeLong, James Webb Sur. 83, D.&A. 555 ft.

H. A. Ringle No. 1 Seal, Sec. 133, Washington Co. R.R. Sur. Drlg. 1,322 ft.

Dan Short's No. 1 J. G. Davidson, NW part of Lovie P. Moore Sur.; 3,500-ft. test. Drlg. 2,115 ft.

Ward County

Gulf Oil Corp. No. 5 Wristen, Sec. 18, Blk. 5, H.&T.C. Sur.; scheduled Ordovician test. U.R. 2,700 ft.

Yoakum County

Fred M. Allison Prod. Co. No. 1 D. T. Bush Est., Sec. 629, Blk. D, J. H. Gibson Sur. Drlg. 4,600 ft.; (tight well).

Aloco Oil Co. No. 1 W. S. Knight, Sec. 773, Blk. D, J. H. Gibson Sur. (Extension). Drlg. 4,547 ft.

TEXAS PANHANDLE

Armstrong County

Holmes, Newblock & Haley No. 1 Ed Moore, Sec. 319, Blk. 4-B, H.&G.N. Sur. Drlg. 4,500 ft.

Castro County

English et al No. 1 Gundlach, NW¼ Sec. 145, Blk. 6-M, S.K.&K. Sur. Loc.

Deaf Smith County

Uscan No. 1 Farwell, Sec. 18, Blk. 3, X. Sur. C.O. 5,650 ft.

Gray County

Products O. & G. Co. No. 1 Mason Davis, Sec. 23, Blk. 23-M, H.&G.N. Sur. Loc.

Hartley County

Phillips Pet. Co. No. 1 W. K. Gordon, Sec. 3, Blk. 44, H.&T.C. Sur. Drlg. 2,508 ft.

Ochiltree County

James R. Macon et al No. 1 W. R. Norris, SW SE Sec. 212, Blk. 43, H.&T.C. Sur. Bailing rotary fluid preparatory to resuming drlg. with C.T.; T.D. 6,274 ft.

Potter County

Les Whitaker No. 1 D. Pavillard, Sec. 101, Blk. 2, A.B.&M. Sur. Drlg. 460 ft.

Roberts County

E. J. Dunigan, Jr., No. 1 Ledrick, Sec. 34, Blk. C, G.&M. Sur. Drlg. plug 5,428 ft.

Wheeler County

Smith Bros. No. 1 Ribble, Sec. 46, Blk. 5-A, H.&G.N. Sur. Drlg. 4,135 ft.

E. C. TEXAS WILDCATS

Anderson County

R. H. Williamson No. 1 O. G. Rogers, Wm. Greenwood Sur., 6 mi. SW of Elkhart. R.U.

Angelina County

Ginter Bros. No. 7 Copes Hrs., J. Morin Sur., 3 mi. E of Dibol. S.D. 60 ft.

Camp County

H. S. Moss' No. 1 Blackston, E. B. Davis Sur., 2 mi. S Pittsburg. M.I.H.

Ellis County

C. M. Beckner et al No. 1 H. A. Styles, A. Bullock Sur., 3½ mi. W of Maypearl. S.D. 660 ft.

Falls County

M. A. Hayes No. 1 D. G. Wooten, J. Powell Sur., 8 mi. SE of Lott. Prep. swb. 2,133 ft.

R. D. Salisbury No. 1 W. M. Shankle, J. A. Manchaca Sur., 1½ mi. NE Chilton. Drlg. 550 ft.

Jack Shaunfield No. 1 Bargonier, J. M. Graham Sur., SE of Chilton. Rng. 4-in.; T.D. 1,160 ft.

Fannin County

H. W. English No. 1 T. W. Ayers, J. D. Seales Sur. S.D. 680 ft.

Freestone County

Brothers Oil Co. No. 1 P. D. C. Ball, M. Rionda Sur., 5 mi. NW of Butler. W.O.C. 7-in. 100 ft.

W. H. Keeling No. 1 Bounds-Longbotham, R. B. Longbotham Sur. S.D. 30 ft.

A. G. W. Biddle No. 1 D. O. Nettles, Y. G. Dollahite Sur., 5 mi. NW of Fairfield. Loc.

Grayson County

John Grey No. 1 Freedman, W. S. Reeves Sur., 8 mi. NW of Denison. O.S. 1,357-59 ft.; S.D. 1,381 ft.; S.O.; tstd. S.W.; S.D.; W.O. 1,407 ft.

Prince Bros. No. 1 Williams, S. Nix Sur., 2 mi. NE of Van Alystine. S.D. 1,173 ft.

Houston County

Aloco Oil Co. No. 1 Z. W. Wiesinger, T. H. Barrow Sur., 7 mi. SW of Elkhart. Drlg. 3,010 ft.

Humble O. & R. Co.'s No. 1 A. Pouncey, J. G. Thompson Sur., Navarro Crossing area. Drk.

Hunt County

Jennings & Dooley No. 1 V. T. Banks, J. W. Haynes Sur., 5 mi. NE of Greenville. D.&A. 3,342 ft.

Westmount Oil Co. No. 1 Stevens, J. L. Terry Sur., Abst. 1231, 1½ mi. N of Celeste. Drlg. 3,250 ft.

Leon County

J. K. Hughes No. 1 Moore, J. N. Boyd Sur., 6 mi. SE Buffalo. Swbg. S.W., 40% oil; T.D. 5,534 ft.

Limestone County

J. R. Bunn's No. 1 C. O. Wright, M. Clendennen Sur., 1 mi. SE of Coolidge. Drk.

M. Samuel No. 1 C. Barron, W. G. McKinsey Sur., 4 mi. NW of Thornton. Drlg. 2,000 ft.

McLennan County

M. M. Russell No. 1 J. B. Lindsey, G. H. Robertson Sur., NW of Waco Lake. D.&A. 415 ft.

Nacogdoches County

D. McDaniels No. 1 T. H. Seale, J. A. Cherino Sur., just outside of city limits of Cherino. Prep. to D.D. 842 ft.

Navarro County

Topaz Oil Co.'s No. 2 W. J. Trammel, A. C. Kyser Sur. Drlg. 825 ft.

Red River County

Kansas-Oklahoma Pet. Corp. No. 1 R. H. Ringwald, A. Moore Sur., 3 mi. W of Manchester. U.R. 806 ft.

Robertson County

J. E. Cox No. 1 Sandifer, H. Henry Sur., 3⅛ mi. SE of Franklin. Loc.

Smith County

Martin & Moore No. 1 B. H. Lunceford, W. Shipp Sur., 3 mi. NW of Garden Valley. S.D. 100 ft.

O. L. Ross No. 1 W. P. Rushing, J. Herrin Sur., 1 mi. E of Whitehouse. Drk.

Texas Co.'s No. 1 A. A. Scritchfield, D. Page Sur., 2 mi. NW of Bullard. Drk. and R.U.

J. H. Thomason No. 1 J. W. Bartlett, R. H. Stewart Sur., ½ mi. SE of Jamestown. S.D. 2,004 ft.

Trinity County

Gossage et al's No. 1 First Natl. Bnk., B. F. Wright Sur., south of town of Trinity. R.U.

NORTH TEXAS WILDCATS

Archer County

Bridwell Oil Co.'s No. 1 Thom, W. H. Spillers Sur., Abst. 375. 6⅝-in. 3,773 ft.; W.O.C.

British American No. 1 Jack Parkey, Sec. 11, Blk. 3, H.&T.C. Sur., 5,000-ft. test. Test L. 4,653-69 ft.; T.D. 4,669 ft. W.O.T.

Deep Oil Dev. Co. No. 1 J. A. Little, NE¼ Sec. 2, H.T.&B. R.R. Sur., Abst. 811. Cmtd. 6⅝-in. 4,320 ft.; O.S. 4,330-43 ft.; W.O.T.

Magnolia Pet. Co. No. 1 F. Them, N part of S 553 acres of Spillers Sur., Abst. 375; 5,000-ft. test. 6⅝-in. at 3,800 ft.; sdy. L., S.O. 3,839-60 ft.; T.D. 3,868 ft.; P.B. 3,861 ft. and tstg.

Clay County

L. T. Burns No. 1 E. F. Calloway, Lot 9, Hopkins Co. Sch. Ld. Enc. sat. 5,241-54 ft.; prep. core 5 ft. more and cmt. csg.

L. T. Burns No. 1 J. T. Pickett, W. W. Yearly A-745. 6⅝-in. 4,430 ft.; O.S. 4,430-44 ft.; P.B. 4,380 ft.; W.O.C.

Frabor-Hodges and Mid-Union Drlg. Co. No. 1 Mrs. R. C. Kinder, Lot 11, Clark & Plumb Sur., Blk. 2. S.S.O. 5,273-90 ft.; T.D. 5,527 ft.; P.B. 4,320 ft.; S.S.O. 4,130-65 ft.; shot 60 qt. 4,130-52 ft.; no show; swbg. 5 B.P.H.; tstg. on pmp.

Nixon Brothers and J. W. Dutton No. 1 Tanman, SE¼ of Block 4, Cherokee C.S.L. Spdg.

Shell Oil Co., Inc.'s No. 1 Scaling, C of Blk. 87, J. H. Belcher Sur., 4 mi. S of Burns pool. R.U.R.

Youngblood & Foree's No. 1 Mrs. Ida Wynn, Sec. 2, T.&N.O. Sur. A-795. Drlg. 5,550 ft.

Cooke County

Target Drlg. Co. No. 1 Honeycutt, Sec. 4, Univ. Lge. No. 8. Set. whpstk. 3,153 ft.; T.D. 4,950 ft.

Cottle County

J. E. Burns et al No. 1 J. E. Moss, Sec. 5, Blk L, A. Forsythe Sur. Loc.

Magnolia Pet. Co. No. 1 Alice Green, NW part of John M. Grogan Sur., Abst. 1121. Drlg. 5,556 ft.

Hardeman County

Amerada Pet. Corp. No. 1 W. M. Rice, Sec. 81, Blk. H, W.&N.W. Sur. Drlg. 6,122 ft.

G. T. Kimble No. 1 M. T. Walling, SW¼ Sec. 368, Blk. H, H.W.&N.W. Sur., 5,500-ft. test. Loc.

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WORKING BARREL
COMPANY
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Jack County

Hanlon-Buchanan, Inc.'s No. 1 T. T. Bouldin, SW part of Blk. 3, W.C.R.R. Sur., Abst. 906. R.U.R.

Harper Pet. Corp. No. 2 S. V. Vanhooser, Abst. 1926, J. W. Morrow Sur. Drlg. 2,030 ft.

Nelson Oil Syndicate No. 1 O. D. Birdwell, SW part of T. B. Riddle Sur., Abst. 1647. T.D. 4,405 ft.; flwg. by heads; W.O.T.; O.S. 4,380-4,405 ft.; 5½-in. 4,380 ft.

Pitzer & West's No. 1 Sloan, Sec. 2786, T.E.&L. Sur. Drk.

Montague County

Phillips Pet. Co.'s No. 1 Custers, J. McKnight Sur., Abst. 480. Drlg. 3,702 ft.

Sackett and Continental No. 1 J. L. Brown, Sec. 58, E.T.R.R. Sur. Drlg. 3,353 ft.

Wichita County

Hanlon-Buchanan, Inc., No. 1 Fassett & Tuttle "F." D.L.&C. Sur. A-596. 6⅝ in. 4,040 ft.; L.&O.S. 4,061-92 ft.; shot 155 qt.; tstg. est. 100 bbl.; S.D.O.

J. R. Price and others No. 1 Hodges. NW¼ of Block 13, Burkburnett townsite, Thomas Redman Sur., Abst. 249. T.D. 1,710 ft.; 6⅝-in. 1,670 ft.; shot with 17 qt.; S.D.O.

Staley Oil Co. No. 1 Banta, W½ Thos. Cooke Sur., Abst. 34. S.D.O. 4,586 ft.

Wilbarger County

Lawson & Leavell No. 16 W. T. Waggoner A, Sec. 109, H.&T.C. Sur., Blk. 14; 3,500-ft. test. S.D.O.

Rogers & Cavin No. 1 A. P. Morris, Sec. 3, Blk. 14, SW of Harrold. S.D.O. 2,100 ft.

Wise County

H. M. Muse No. 1 F. F. Kaker, Blk. 16, Matagorda Co. Sch. Ld. Pits.

Young County

Cosden Pet. Co.'s No. 1 H. C. Shanafelt, A.B.&M.A. Sur., Abst. 1369. Spud and S.D.

H. W. Dyer's No. 1 M. G. Cheney, M. L. Terry Sur., Abst. 1261. Loc.

Gentex Oil Co. No. 1 Burch, Abst. 1770, T. J. Burch Sur. Set 5½-in. at 4,145 ft.; T.D. 4,364 ft.; 5½-in. 4,085 ft.; recmtd. and W.O.C.

L. A. Long et al No. 1-B King-Wooten, Sec. 1969, T.E.L. Sur. 5½-in. 4,335 ft. collapsed; fsg.; T.D. 4,538 ft.; S.D.O.

Pitzer-West and Brazos-Young No. 1 F. Wray, Abst. 140, J. P. Hume Sur., 4,500-ft. test. Fsg. tools 4,100 ft.

Stanley Thompson et al No. 1-A J. C. Vaughn, Blk. 3, T.&N.O.R.R. Sur., Abst. 1248; 4,250-ft. cable tool test. Drlg. sh. 2,640 ft.

Taubert & McKee Drlg. Co.'s No. 1 Shanafelt, P. Pointevent Sur., Abst. 1,309. Drk.

Trentman, Nunnelly & Rankin No. 1-B Henry Brashears, Sec. 1974, T.E.L. Sur. 6⅝-in. 3,980 ft.; L.S.O. 3,980-4,022 ft.; 12 B.O., 100 B.W. in 12 hrs.; S. D.O.

EAST TEXAS

(Border Counties)

Harrison County

Ark. La. Gas Co. No. 1 W. B. Taylor, 1,150 ft. EL, 3,774 ft. SL, 1,115-ac. tr. Holloway Sur. D.S.T. Abney zone 4,827-80 ft.; 15-min. rec. 20,000,000 cu. ft. gas and brk. wtr.; W.P. 480 lb.; cg. L.&sh. 5,595 ft.

J. A. Hughes' No. 1 Taylor, H. McNutt Sur. S.D. 1,947 ft.

Marion County—Other

M. D. Fitzwater No. 1 Mrs. Mary Duncan, Jesse Fitzgerald Sur. T.D. 2,558 ft.; drlg. plug.

J. M. Horn No. 1 W. Taylor, 450 ft. EL, midway N and SL, B.B.B.&C.R.R. A-54 Sur. Set 6-in. csg. 2,289 ft.; T.D. 2,313 ft.; drlg. plug.

J. D. Reynolds No. 1-B Terry, 500 ft. S. 100 ft. W of No. 1, W. Coore Sur. Csg. collapsed; T.D. 2,360 ft.; W.O.

J. D. Reynolds et al No. 5 Terry Est., 675 ft. E of No. 1, W. Coore Sur. T. Tokio oil sd. 2,332 ft.; 5-in. csg. 2,331 ft.; T.D. 2,359 ft.; W.O.S.R.

Joe G. Strahan's No. 1 Stiles et al, 330 ft. SW cor. tr., M. G. Nall Sur. 10-in. csg. 21 ft.; W.O.C.

Marion County—Rodessa

Ark. Fuel Oil Co. No. 1 A. P. Cromer, 1,100 ft. S, 200 ft. W, NE cor. 119-ac. tr., W. Peacock Sur. 9⅝-in. csg. 1,022 ft.; drlg. L. 4,984 ft.

Gulf Oil Corp.'s No. 2 C. W. Ralph, 2,825 ft. SL, 519 ft. WL, J. Hanks Sur. R.U.

Magnolia Pet. Co. No. 2 Duncan, 933 ft. S of No. 1, T. H. Davis Sur. Set 7-in. csg. 6,023 ft.; T.D. 6,030 ft.; W.O.C.

Phillips Pet. Co. No. 3 N. B. Henderson. Gillespie Sur. 7-in. csg. 6,068 ft.; W. O.C.

Texas Co. No. 5 Braden, J. Fitzgerald Sur. 7-in. csg. 6,000 ft.; perf. 5,975-92 ft.; tstg. 6,003 ft.

Panola County

Turner & Smith No. 1 Panola Dev. Co., 2,500 ft. NL, 1,000 ft. WL, Gillespie Sur. Set 10¾-in. csg. 6000 ft.; T.D. 1,700 ft.; W.O.C.

WEST CENTRAL TEXAS DISTRICT

Brown County

A. D. Bruce's No. 1 L. S. Mauldin, SW¼ Sec. 15, H.&T.B. Sur., Abst. 464. Drlg. 1,450 ft.

J. L. Derrich No. 1 C. V. Harris, Sec. 617, Prosper Mangle Sur. Drlg. 1,450 ft.

Kynaston & Cullison's No. 1 L. A. Hill, SW Sec. 35, H.T.&B. Sur. Loc.

Lynn No. 1 Nesbitt Rice, M.E.P.&P. Sur Blk. 25. S.D. 1,120 ft.

Wilson Oil Co., Inc., No. 1 M. Bowden, Sec. 138, W. E. Gilliland Sur. Fsg. tools 905 ft.

Callahan County

Bayou Oil Co. No. 1 W. E. Jones, Sec. 84, Comal Co. Sch. Ld. Sur. Loc.

Dobbs Oil Corp. No. 2 Finley, Sec. 75, Bayland Orphans Home Lds. S.D.O. 2,104 ft.

S. Henderson et al's No. 1 I. N. Jackson, SW¼ Sec. 20, E.T.R.R. Sur. Drlg. 200 ft.

T. S. Holden's No. 1 Nichols et al, 5 mi. SE of Cross Plains. Spud.

M. M. Little et al No. 1 W. P. Ledbetter, Sec. 4, NW M. Cherry Sur. Drlg. 789 ft.

J. L. Reeves et al's No. 1 P. G. Hatchett, NW¼ Sec. 30, D.&D.A. Sur. Spd.

Hal Wagnon et al's No. 1 Wm. Isenhower, Sec. 304, Blk. 5, S.P. Sur. S.D.O. 425 ft.

Coleman County

Anzac Oil Corp.'s No. 5-C J. P. Morris, David Breeding Sur. S.D.; test 2,175-94 ft.

Cooper Oil Co.'s No. 1 J. P. McCord, Sec. 519, San Augustine Sur. S.D. 3,977 ft.; will P.B. to T.S. 3,975 ft.

Kynaston-Culberson-Culberson & Bozeman No. 1 J. P. McCord, Sec. 159, J. W. Meeks Sur. U.R. 10-in. csg. 1,412 ft.

A. R. Pruitt No. 1 Y. B. Johnson, J. W. Hicks Sur., Abst. 265. Drlg. 450 ft.; no report.

Comanche County

J. W. Cawley et al No. 2 A. K. Anderson, SE Subd. 6, Lampasas C.S.L., Sec. 34, Abst. 608. Drlg. 529 ft.

Concho County

L. G. Byerley No. 1 Mrs. G. Noyes, NW part of Sec. 1402, Abst. 98. Drlg. 1,605 ft.

Natural Resources Corp. No. 1 Armor, Sec. 105, Blk. 72, T.&N.O. Sur. S.D.O. 1,216 ft.

Eastland County

R. R. Groce's No. 1 J. M. Rush, Sec. 130, Blk. 3, H.&T.C. Sur. S.D. 1,723 ft.; W.O.T.

Lone Star Gas Co.'s No. 1 F. J. Kimmel, Sec. 87, Blk. 4, H.&T.C.R.R. Sur. Loc.

J. L. Reeves No. 1 J. V. Parker, NW part of Wm. Van Norman Sur. S.D.O. 1,225 ft., T.D.

W. A. Stiles et al's No. 1 H. F. Duncan, Sec. 10, Blk. 2, H.&T.C.R.R. Sur. Loc.

Erath County

Wayne Chandler's No. 1 Chandler, J. W. Moore Sur., Abst. 571. S.D.O. 4,794 ft.

T. Gray's No. 1 C. Young Hrs., NW cor. of Stephen Smith Sur., Abst. 682. T.D. 112 ft.; prep. D.D.; M.I.M.

T. G. Jackson No. 1 J. W. Taylor, Prater Sur., Abst. 1029, 4 mi. NE of Desdemona. S.D.; 10-in csg. 750 ft.

J. F. Mounssey et al's No. 1 R. J. Sikes, J. Hargrave Sur., 6 mi. N of Stephenville; (5,000-ft. test). Drlg. 54 ft.; no report.

Hamilton County

Wallace & Vickers' No. 1 C. C. Lund, J. P. Bailey Sur. 51. Fsg. 3,453 ft.

Haskell County

P. S. Kendrick No. 1 T. G. Hendrick, NW part of Sec. 1, A.B.&M. Sur. U.R. 10-in. csg. 1,497 ft.

Hood County

D. S. Sowell's No. 1 Burton, L. Campbell Sur. S.D.O. 4,380 ft.

Jones County

Healey & Walters' No. 1 Warren, D. P. Rowland Sur. Spd.

Humble O. & R. Co. No. 1 Ida Irwin, NW¼ Sec. 41, Blk. 18, T.&P. Sur. U.R. 6⅝-in. in fr. 2,361 ft.; T.D. 2,394 ft.

Jones & Stasney No. 1 Muehlstein, Sec. 28, D.&D.D. Lds. Drlg. 2,380 ft.

N. H. Martin & Sons No. 1 Wirt Davis, SW Subd. No. 7, F. M. Smyth Sur. No. 3. S.O. est. 90 B.O.P.D.; S.D.O. 1,721 ft.; W.O.T.

Moutray Oil Co. and King's No. 1 Ray Hayden, NW¼ Sec. 33, Blk. 15, T.&P. Sur. Drlg. 1,526 ft.

Keeler's No. 1 Radford, SE¼ Sec. 20, Blk. 16, T.&P. Sur. S.D. 1,800 ft.

J. M. Radford Gro. et al's No. 1, Sec. 21, Blk. 4, H.&T.C.R.R. Sur. Spd.

A. H. Tarver No. 1 A. S. Barkley, Sec. 54, Deaf and Dumb Asyl. Lds. S.D.O. 5,118 ft.

Mills County

D. Lane's No. 1 J. W. Spinks, J. Douglas Sur. 5. S.D.O. 1,780 ft.

Nolan County

Green & Owens' No. 1 Tipton, Sec. 43, Blk. 19, T.&P. Sur. Drlg. 4,647 ft.

Plymouth Oil Co. No. 1 F. M. McClure Sec. 49, Blk. 23, T.&P. Sur., 8,000-ft. test. Drlg. 3,050 ft.

Palo Pinto County

W. K. Gordon No. 1 W. R. Ringe, Sec. 81, Blk. 2, T.&P. Sur. Run 10-in. csg. 1,225 ft.

Hickock & Reynolds No. 1 R. H. Gouldin, L. P. Elder Sur., Abst. 1474. Drlg. 2,030 ft.

Palo Pinto O. & G. Co. No. 1 A. P. Wilbar, Blk. 59, Burleson C.S.L. D.& A. 3,331 ft.

Parker County

Brown & Gardner Bros. No. 1 Gilbert, T.&P. Sur., Abst. 1958. S.D. 2,680 ft.; repairs.

Shackelford County

Dean Bros.-A. W. Adkisson No. 1 W. P. Newell, SW¼ 114, E.T.R.R. Sur. Drlg. 940 ft.

Fain & McGaha Oil Corp.'s No. 1 Dawson-Conway, SE cor. P. G. Holcomb Sur., Abst. 1424. Drlg. 501 ft.

J. L. Hart's No. 1 E. O. Beck, Sec. 159, B.B.B.&C. Sur. (outpost test to Ivy pool). Loc.

Owens-Snebold Oil Corp.'s No. 1 E. P. Olsen, SW¼ Sec. 163, B.B.B.&C. Sur. (1 mi. SW of Ivy pool). Loc.

C. R. Schuster No. 1 L. E. DeWitt, Blk. 56, Univ. Lds. S.D. 3,040 ft.; wtr.

W. T. Whitteken et al No. 2 O. G. Humber, NE¼ NW¼ Sec. 21, B.A.L. Sur D.&A. 500 ft.

Stephens County

Geo. E. Fagg No. 1 Richardson, Sec. 5, Blk. 31, S.P.R.R. Sur.; 4,000-ft. test. Straightening hole 670 ft.

T. G. Shaw, Tr.'s No. 1 S. P. Stroud, NW¼ of G. Newton Sur., Abst. 128. Fsg. bit. 990 ft.

A. G. Swanson No. 1 Veal-Frost, Sec. 37, Blk. 8, T.P. Sur. S.D. 1,686 ft.

Stonewall County

L. Clark et al's No. 1 M. R. Neatherly, Sec. 53, Blk. D, H.&T.C.R.R. Sur. Spd.

Shell Oil Co., Inc., No. 1 A. E. Smith, Sec. 143, Blk. 1, H.&T.C. Sur.; 6,000-ft. test. Drlg. 1,545 ft.

Taylor County

Tal Vez Oil Co. No. 1 J. W. Martin, Blk. 1, T.&N.O. Sur. Drlg. 2,498 ft.

ARIZONA

Apache County

Franco-Arizona Oil Co.'s No. 1 Government, SE NE Sec. 14-14n-26e. Derrick.

Rincon Drlg. Synd. No. 1 State, NE¼ Sec. 28-13n-27e. S.D. 500 ft.

Cochise County

Funk Benevolent Corp. No. 1 fee, SE NE Sec. 27-13s-30e. Cg. 6,643 ft.; S.O.

Maricopa County

Ben Case No. 1 Johnson, NE¼ Sec. 12-1s-5w. Loc.

Legco Drlg. Co. No. 1 Battles, SW SE Sec. 25-1n-4w. Loc.

Sam F. Reaves No. 1 Fuqua, NW NW NE Sec. 34-1n-1w. S.D. 4,117 ft.

Peoples O. & G. Co. No. 1 Gardner, SE¼ Sec. 2-1n-3e. Drlg. below 500 ft.

Pima County

R. W. Schenck No. 1 Boyce, Sec. 22-19s-17e. S.D. 350 ft.

Yavapai County

Ari-Copa Drlg. & Mining Co. No. 1 Puntenney, SW¼ Sec. 27-18n-2w. Drlg. 264 ft.

Chino Valley Oil Dev. Co. No. 1 State, Sec. 20-18n-2w. Drlg. 900 ft.

Yuma County

Chas. T. Lark, Sec. 7-7s-14w. Loc.

Yuma Valley O. & G. Co. No. 1 Musgrove, N½ SW NW NE Sec. 11-11s-25w. Reported below 650 ft. with several shows of oil.

VAPOR-PHASE COOLING

(Continued from Page 67)

The vapor-phase unit on this system is of the air (radiator) condenser type. The discharge water is at 216° F. The water into the jackets is 210° F. The crankcase temperatures measured before the installation of the system were 165° with ambient temperature of 70°, and after the installation were 145° with an ambient of 72°.

At the present time we have installed some 16 units. Fifteen of these have been of the radiator or air-condenser type and one is of the water-condenser type. They have been installed on engines from 350 cu. in. up to and including engines of 1,000 cu. in. We have further operated an 8 by 10 2,000-cu. in. engine at a discharge-water temperature of 212° with an inlet temperature of 198°; and while this latter engine was not on a vapor-phase system, it was possible to maintain these temperatures because of the elevated height of the cooling tower. These temperatures were maintained by manual operation of bypass valves for sufficient period to indicate that there was no apparent difficulty in operation.

The recovery of waste heat through exhaust boilers has been standard practice for a number of years. Since most applications of waste heat require that the temperatures at which it is used be relatively high, it has been impossible to use little, if any, of the jacket-water heat. If exhaust boilers alone are used, the amount of heat available for practical application is between 2¼ to 2½ lb. of steam per b.hp.-hr., and it is difficult to deliver this steam at over 5-lb. pressure. By the use of the vapor-phase system, the discharge water from the jackets is circulated through a waste-heat-exhaust boiler and into the flash tank where the steam is removed, passed through the heat exchangers of the process, and the condensate returned to the flash tank. With this system it is possible to recover with relatively inexpensive equipment some 4 to 5½ lb. of steam per b.hp.-hr. at full load and to deliver it at 5-lb. pressure. How much higher it is feasible to run this pressure is not known, but the writers do not believe that jacket-water temperatures of as high as 350° will be injurious to the operation of engines. In fact, there are 12 by 15-in. diesel engines operating in Great Britain with a steam pressure of 125 lb. which gives a jacket-water temperature of 353° F., and it is common practice to operate liquid-cooled aircraft engines at 325° F.

Fig. 4 is a graphical representation of the heat distribution and available heat recovery possible with an explosion-type engine. If it is possible to operate the jackets at a temperature sufficiently high so that the heat may be commercially utilized, it is possible to recover in useful heat energy approximately one-half of the total heat input of the fuel; and when this is added to the mechanical energy which represents approximately one-fourth of the total input heat, it gives an overall effective thermal efficiency of approximately 75 per cent. Such total heat recovery will then place the internal-combustion engine in the category of the most efficient heat utilization apparatus. The vapor-phase system makes such heat recovery commercially possible.

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Market Record of Active Oil Stocks

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1939 High	1939 Low	Week ending Sept. 2 High	Week ending Sept. 2 Low	Week ending Sept. 2 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1938	Com. sh. earn. 1937	1938 High	1938 Low	1937 High	1937 Low
70	50	64	57	63½	Amerada Corp.	788,675	N.P.	50cQ	7-1-39	$2.00	$2.07	$3.04	78	55	111⅞	51⅛
23½	18⅛	19¼	18⅛	18¾	Atlantic Refining	2,663,999	$25	25cQ	9-15-39	1.00	1.40	3.51	27⅝	17¾	37	18
21½	10¼	12	10¼	11¼	Barber Asphalt Co.	390,223	$10	75c	12-16-37	....	—.85	1.91	23¾	12⅛	43⅜	10⅛
19½	11⅛	14½	11⅝	14¼	Barnsdall Oil Co.	2,250,344	$5	25cQ	8-1-39	1.00	1.26	.85	21⅝	10⅛	35¼	10
9¼	6½	7¾	6½	7⅝	Consolidated Oil Corp.	13.751.846	N.P.	20cQ	8-15-39	.80	.55	1.48	10⅜	7	17⅞	7
31½	19⅞	26	20¾	24½	Continental Oil of Delaware	4,682,581	$5	25cQ	9-28-39	‖1.00	1.10	2.98	35¾	21¼	49	24
8⅜	4½	6	4½	5⅞	Houston Oil (new)	1,098,618	$25		10-17-30	....	.83	.94	9¾	5	17⅝	4¾
20¼	10	14¼	10½	14	Lion Oil Refining	435,815	N.P.	25cQ	7-25-39	1.00	2.09	2.17	25½	15⅝	34	12½
16½	11⅛	15½	12	15	Mid-Continent Petroleum	1,857,912	$10	25c	6-1-39	.60	.56	2.86	22⅝	12¼	35⅝	14
14⅞	8¾	11	9	11	Mission Corporation	1,379,245	$10	25c	6-29-39	1.00	1.04	1.31	17¾	10⅝	34	15
15½	5⅝	8⅜	6⅛	8	National Supply	1,155,517	$10	$2 pf.‡	12-22-37	....	—.79	4.90	23	12½	41⅜	17⅝
10¼	6	8	6	7⅞	Ohio Oil Co.	6,563.377	N.P.	20c	12-15-38	.20	.25	1.30	14⅞	8⅞	22⅞	8
11⅞	7⅜	9	7⅜	9	Pacific Western Oil	1,000.000	N.P.	50c	12-20-38	.50	1.22	1.39	15⅞	10¼	29¾	11⅝
6¾	5	..	..	..	Pan American Pet. & Trans.	4,702.945	$5	$1*	12-21-37	....	.08	1.18	9¼	6¼	17⅛	7
43¾	31¼	39	33	39	Phillips Petroleum	4,449,052	N.P.	50cQ	9-1-39	‖2.00	2.03	5.42	44⅜	27¼	64	30⅛
22½	17⅛	19⅝	17⅛	18¾	Plymouth Oil Co.	1,006,200	$5	35cQ	9-30-39	1.40	2.59	2.85	25⅜	15	29⅞	13
11¼	6½	8⅞	6⅜	8½	Pure Oil Co.	3,982,031	N.P.	25c	12-1-37	....	.38	2.15	13½	8¼	24⅜	8⅜
10¼	6⅝	8	6¾	7¾	Richfield Oil Corp.	4,010,000	N.P.	50c	12-21-38	.50	.51	.35	9⅞	5	6½	4⅛
22⅜	15½	19½	16¼	18¾	Seaboard Oil of Delaware	1,244,383	N.P.	25cQ	9-15-39	1.00	1.52	1.97	27½	15½	54⅛	16
15⅛	9⅞	12¼	9⅞	12	Shell Union Oil	13,070,625	N.P.	25c	7-20-39	.70	.72	1.44	18⅜	10	34⅜	14⅞
29½	15½	19½	16	19⅛	Skelly Oil	995,349	$15	50c	12-15-38	1.00	2.27	6.07	34⅜	18½	60⅝	26½
13⅜	10¼	12⅛	10⅜	11⅞	Socony-Vacuum	31,206,071	$15	25cSA	9-15-39	.50	1.29	1.82	16⅜	10⅜	23¼	13
30⅛	24¼	26⅝	24¼	26⅛	Standard Oil of California	13,004,153	N.P.	25cQ	9-15-39	1.40	2.22	3.17	34⅞	25⅛	50	27⅛
29⅛	22⅜	24⅜	22⅜	24½	Standard Oil (Indiana)	15,272,020	$25	25cQ	9-15-39	1.00	1.82	3.66	35½	24⅜	50	26½
53⅛	38½	43	38¾	42⅞	Standard Oil of New Jersey	26,618,065	$25	50c¶	6-15-39	‖1.50	2.86	5.64	58⅝	39¾	76	42
66	45¾	48	45¾	45¾	Sun Oil	2,316,484	N.P.	25cQ	9-15-39	1.00	1.07	3.86	65⅛	45	77½	44½
3¼	1⅜	2¼	1⅜	2¼	Superior Oil Corp.	1,388,979	$1	10c	12-28-38	.10	.24	.32	4¼	1⅜	7⅜	1½
48¼	32½	39⅞	34½	39¼	Texas Corp.	10,876,882	$25	50cQ	7-1-39	2.00	2.13	5.02	49⅝	32⅝	65½	34⅜
5⅜	3¼	4	3½	4	Texas Gulf Producing Co.	888,144	N.P.	10c	6-15-39	.15	.86	.68	5⅞	2⅝	9⅝	2
10⅛	7	8	7⅛	7⅞	Texas Pacific Coal & Oil	888,236	$10	10c	9-1-39	.40	1.16	1.11	12½	7	16⅝	5⅝
14¼	9½	11¾	9⅝	11¾	Tide Water Associated	6,375,253	$10	15c	9-1-39	1.00	1.28	2.08	15⅝	10⅛	21⅝	13⅛
19⅜	15⅛	16¼	15¼	16¼	Union Oil of California	4,666,270	$25	25c	8-10-39	1.20	1.47	2.58	22½	17⅛	28⅛	17⅛
23⅝	20⅛	21¼	20⅜	20⅜	Union Tank Car Co.	1,177,381	N.P.	30cQ	9-1-39	1.30	1.16	1.70	23½	20	31½	22
3¾	2⅜	..	..	..	Wilcox Oil & Gas	487,568	$5	....	5-10-28	....	.52	.24	3½	1⅝	6¼	1⅝

*Payable in 3½ per cent notes. †Includes extras. ‡One-tenth share $2 preferred stock. §Also 1½ per cent stock dividend. ‖Also right to subscribe to bonds. ¶Also 1 per cent in stock. —Deficit.

New York Curb Exchange

1939 High	1939 Low	Week ending Sept. 2 High	Week ending Sept. 2 Low	Week ending Sept. 2 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1938	Com. sh. earn. 1938	Com. sh. earn. 1937	1938 High	1938 Low	1937 High	1937 Low
9	5½	6¼	5½	6¼	American Republics Corp.	1,308,049	$10	10c	7-11-38	$0.10	—$0.22	$0.27	11⅝	5	10	6⅝
7½	2⅝	3¼	3⅛	3⅛	Bridgeport Machine Co.	270,000	N.P.	$1.25	12-30-37	....	—.14	1.90	10¼	4⅞	21⅜	7
34¾	27¼	..	..	..	Buckeye Pipe Line Co.	200,000	$50	50c	9-15-39	2.00	2.36	4.02	39	22½	51½	36
130	110	115	115	115	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-25-39	6.50	5.32	6.73	128	97	112	95½
9¼	4½	5⅜	4½	4⅞	Cities Service (new)	3,704,067	$10	....	6-1-32	....	.23	1.02	11	5⅛	5⅜	1½
2⅛	1⅜	1⅝	1⅜	1⅜	Cosden Petroleum	462,551	$1	....	....	....	....	.19	2⅜	⅞	5½	1½
23¾	16¾	22	19	21½	Creole Petroleum	6,975,383	$5	50cSA†	6-15-39	1.00	1.64	1.61	27½	17½	38¾	20¼
7⅛	3⅝	4	4	4	Darby Petroleum	351,390	$5	25cSA	1-15-39	.50	....	1.38	10¼	5½	18⅝	6½
2⅜	1½	1⅝	1½	1⅝	Derby Oil & Refining	263,162	N.P.	....	....	....	—.91	1.34	3½	1½	8⅜	2¼
20	15½	17	17	17	Eureka Pipe Line	50,000	$50	50c	8-1-39	3.00	—.37	—.12	31	16	47½	24½
40	29¼	36½	30⅛	35	Gulf Oil Corp.	9,076,202	$25	25cQ	10-1-39	1.00	1.43	3.51	46⅞	33	63½	33
69⅜	52½	63½	54¼	62½	Humble Oil & Refining	8,987,840	N.P.	62½c	10-2-39	3.00	3.98	5.22	72⅝	56	87	54⅞
17	12⅞	14⅛	12⅞	13½	Imperial Oil of Canada	26,965,078	N.P.	62½cSA†‡	6-1-39	1.25	.96	.98	19½	14⅛	24¼	14½
7	5⅝	5¾	5¾	5¾	Indiana Pipe Line	300,000	$10	30c	5-15-39	.50	.47	1.03	9⅜	6	15	5⅞
27½	18½	20¾	18½	18¾	International Petroleum	14,324,088	N.P.	1.00†‡	6-1-39	2.50	1.98	....	31¼	21	39½	23½
3½	2¼	2⅜	2⅜	2⅜	Kirby Petroleum Co.	500.000	$1	10c	4-15-38	.10	.14	.17	5	2⅛	8¾	2⅝
9½	7⅛	8½	8	8⅜	Lone Star Gas	5,553,747	N.P.	20c	8-21-39	.60	.88	1.14	10⅜	6⅝	14¼	5¼
7⅜	4	5	4⅛	5	Louisiana Land & Exp.	2,977,449	$1	10cQ	9-15-39	.45	.45	.58	9⅜	6½	15¼	6⅜
17	14½	..	..	..	Margay Oil Corp.	149,943	N.P.	25cQ	7-10-39	1.00	2.28	3.26	24	16	33½	17
8¾	6⅝	7	6⅝	7	Midwest Oil Co.	998,474	$10	45c	6-15-39	1.00	.93	1.14	9⅜	6⅝	14⅝	6¼
5½	4⅞	5⅛	5	5	Mountain Producers	1.593.584	$10	30cSA	6-15-39	.60	.62	.76	5⅝	4½	7⅞	4¼
13¼	11¼	12⅜	11⅜	11½	National Fuel Gas	3,810,183	N.P.	25cQ	7-15-39	1.00	.84	.96	14⅝	11½	19½	12
8½	7¼	8⅛	8⅛	8⅛	National Transit	509,000	$12.50	35c	6-15-39	.75	.88	1.19	9¼	6½	12½	7¼
1⅜	1½	..	..	..	New Mexico and Arizona	1,000,000	$1	1c	12-1-37	....	.02	.02	2⅜	1½	5	1⅜
4⅞	4	..	..	..	New York Transit	100,000	$5	15c	4-15-39	.25	.16	.49	4½	3½	5⅜	3⅞
6	4½	..	..	..	Northern Pipe Line	120,000	$10	15c	6-1-39	.35	.24	.78	6	4	12⅜	5⅜
7⅝	4	5	4	4½	Pantepec Oil	2,857,000	$1	....	....	....	....	....	7¾	3½	9⅝	2⅝
2⅜	1¼	1⅞	1⅝	1⅞	Root Petroleum Co.	336.045	$1	25c	2-1-37	....	.17	—.17	4½	1⅝	12⅜	2
3	1⅞	..	..	..	Ryan Consolidated	298,931	N.P.	....	....	....	.29	.46	4	2⅛	6½	2¼
4¼	3½	4¼	4¼	4¼	Southern Pipe Line	100,000	$10	15cSA	9-1-39	.30	—.27	.85	5⅝	3¼	7¼	3⅞
34⅞	26¾	30	26¾	30	South Penn Oil	1,000,000	$25	37½cQ	9-29-39	1.75	1.44	4.64	39	28¾	56	35
19¾	18	..	..	..	Southwest Penna. Pipe Lines	35.000	$50	50cQ	7-1-39	2.00	—.41	.95	22¼	16½	42	20
18⅞	17¼	18⅛	17⅜	18	Standard Oil of Kentucky	2,604,790	$10	25c	9-15-39	1.25	1.45	1.60	18⅜	15	21⅛	14⅜
17¼	6	17¼	16	17¼	Standard Oil of Nebraska	161,403	$25	25c	3-29-37	....	—.69	—.58	8⅜	5½	13¾	8
24¾	17	21¾	20¼	21½	Standard Oil of Ohio	753,740	$25	25c	9-15-39	1.00	1.81	3.67	22¾	16¼	45	16
2⅝	1⅜	2	2	2	Sunray Oil	2.007.076	$1	5c	4-27-39	.05	.23	.42	3¼	2	4⅞	2
4	2⅝	3	2⅞	2⅞	Texon Oil & Land	936,024	$2	10c	6-30-39	.60	.56	.51	5¼	3½	7⅝	2
5½	2½	4⅛	3	3¾	Transwestern Oil Co.	750,000	$10	....	....	....	—.12	.48	7⅝	4¼	13⅞	4⅝
3⅜	1⅝	2⅝	1⅝	2	United Gas Corp.	7,818,959	$1	....	....	....	—.51	25	5¼	2⅝	13⅞	3

†Includes extras. ‡Payable in Canadian funds. —Deficit.

Personal Paragraphs

R. I. DICKEY, recently joining the staff of the Forest Development Corp., is expected to return to Midland, Tex., with Mrs. Dickey and make their home. Mr. Dickey was recently transferred to San Antonio from Midland when he was with the Stanolind Oil & Gas Co.

A. B. COOK, production superintendent for southern Oklahoma district, Continental Oil Co., and GLENN LYNN, general superintendent, Fain Drilling Co., spent most of last week at Continental's No. 1 Proctor in Section 28-10-20w, Washita County, Oklahoma, where a washover and cutting-out operation to recover tools stuck in Oklahoma's deepest test, drilled to 14,479 ft., was in progress.

P. L. FIMBLE, Pure Oil Co. engineering department, spent his vacation in Arkansas.

ED MORGAN, who has been scouting operations in the Forest City basin in Missouri and Kansas for Sun Oil Co., has been temporarily transferred to the Illinois fields.

C. M. HAMILTON, of New York City, vice president of York State Oil Co., was a recent business visitor in Wichita and other Kansas oil centers. His company is active in the Kansas fields.

W. B. CARLON, head of the accounting and personnel department of Pure Oil Co. at Houston, Tex., who has been confined to his home for several weeks by a severe illness, is recovering.

HAROLD C. BISHOP, New York operator interested with Seaboard Oil Co. of Delaware and eastern banking interests in development of a concession in the Dominican Republic, returned a week ago from a trip to Haiti.

R. OGARRIO, vice president in charge of production for Texas Corp., New York, and L. E. BARROWS, vice president of production, Houston, Tex., have been visiting the Tulsa office of Texas Co. within the past week.

W. L. CHILDS, Reed Roller Bit Co., Houston, Tex., and GEORGE REID, Gulf Coast Refiners Association, also of Houston, have been elected members of the central committee on public relations of the American Petroleum Institute.

EDWARD G. SEUBERT, president of Standard Oil Co. of Indiana, announced that H. W. PIERPONT will be retained as president of the new Standard Oil Co. of Nebraska, formed to take over properties and operations to be acquired by the Indiana company in the deal to which stockholders of the old Nebraska company agreed August 29.

AMON G. CARTER, Fort Worth, Tex., independent operator and newspaper publisher, was the official guest and leader of the huge parade and rodeo held in Midland, Tex., last Saturday. Mr. Carter took his handsome Palomino horse and the saddle and trappings given him by Fort Worth citizens and rode in the parade.

GEORGE HILL, of Hill & Hill, independent operators of Fort Worth, Tex., returned last week from a 6-week vacation trip through the Panama Canal, up the West Coast, and home via California.

JOHN H. HAY, who has been manager of the Billings, Mont., sales division of Standard Oil Co of Indiana, became vice president in charge of sales of the new Standard Oil Co. of Nebraska September 1. E. A. TESSIEN, sales promoter at Billings, will be promoted to assistant manager in charge of the Montana organization. D. F. BENTON, manager at Denver, Colo., will be made manager of the Rocky Mountain division, retaining his headquarters in Denver. J. P. GREGG, JR., sales promoter at Mankato, Minn., is being transferred to Denver as an assistant manager.

ANDREW H. IRELAN and FREDERICK W. NASH, JR., have joined the Alliance Oil Corp., L. C. QUACKENBUSH, president, announced September 1. Mr. Irelan becomes vice president, resigning from his position as manager of the lubricant department, Cities Service Oil Co. of Pennsylvania. A graduate of Purdue University, he joined Cities Service organization in 1919 at Toledo. In 1920 he transferred to Crew Levick Co. of Philadelphia, until 1922, when he returned to Cities Service Oil Co. of Ohio. In 1925 he was transferred again to Crew Levick Co., which later merged into the Cities Service Oil Co. of Pennsylvania. Mr. Nash has been appointed treasurer.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The movement inaugurated against levying a federal war tax on gasoline of 1 cent per gallon is attracting much attention in American oil circles. The opponents of the plan favor in its stead a countervailing duty on Mexican oil.

Mrs. Herbert R. Straight and three children of Bartlesville, Okla., who were in Germany when the European war broke out, have arrived safely in the United States.

20 YEARS AGO

Richard Charles Veit, formerly secretary of the Standard Oil Co., died recently in Japan. He joined the firm of Rockefeller, Andrews, and Flagler, foreruner of the Standard, as an office boy, and rose to be secretary and a director in the company.

Mowry Bates, Tulsa geologist, completes two wells in the Burkburnett, Texas, field, good for 3,000 bbl. and 2,500 bbl., per day, respectively.

Work on the Humble Oil & Refining Co.'s 10-story office building in Houston, Tex., will be started in October, Vice President Blaffer announces.

10 YEARS AGO

George S. Davison resigns as vice president of Gulf Oil Corp. and president of its various producing, refining and pipe line subsidiaries, to take over the management of the Davison Coke & Iron Co. F. H. Leovy succeeds him as vice president of Gulf Oil Corp. and president of Gypsy Oil Co., Gulf Production Co., and Gulf Pipe Line Co. George R. Nutty becomes vice president of the Gulf Oil Corp. and president of Gulf Refining Co. and Bahama Gulf Oil Co.

Oklahoma City field producers petition the Oklahoma Corporation Commission for a 30-day shutdown of that field. Too much production and not enough pipe lines are among the reasons given.

ELMER R. CORN, of Wichita, Kans., and family, spent Labor Day in Colorado Springs, Colo.

W. R. SMITH, head of the engineering department of Pure Oil Co. on the Gulf Coast, has returned from a holiday in Missouri.

A. J. PFISTER, refinery sales manager, is a patient at St. John's Hospital, Tulsa. He is suffering from pernicious anemia and was given a blood transfusion.

A. F. BARRATT, of Casper, Wyo., and E. C. EDWARDS, of Bakersfield, Calif., geologists, have been making a survey in Alberta, Canada, fields for General Petroleum Corp.

ARTHUR F. CORWIN, vice president and director of Socony-Vacuum Oil Co., Inc., was honored by the officers and directors with a dinner in celebration of his completion of 40 years' service with the company.

W. J. DONNELLY, Mount Vernon, Ill., oil operator, was in New York last week to visit the New York World's Fair. He and Mrs. Donnelly returned by way of Cleveland, where they stopped for the National Air Races.

ROBERT S. KING, former president of Pennzoil Co., Oil City, Pa., has been chosen vice president of the Philip Carey Manufacturing Co., Cincinnati, Ohio. Mr. King entered the oil industry as a producer in 1909 in Oklahoma, later forming State Oil Co. at Lincoln, Neb., and Refiners Oil Co. at Dayton, Ohio, selling the latter to Standard Oil Co. of Ohio.

M. M. TRIPPLEHORN, of Tulsa, has returned from a holiday in Colorado.

C. W. MICHAELS, Shell Oil Co., Inc., scout at Oklahoma City, has been transferred to Enid, Okla.

WILLIAM FRASER, deputy chairman of the Anglo-Iranian Oil Co., Ltd., has been knighted by King George VI.

ROBERT GRANNER, formerly a scout for Vickers Petroleum Co., is now in the Illinois fields. He has been succeeded by LON KEMPER.

W. O. GATTON, manager for Magnolia Petroleum Co. at Fort Worth, Tex., has retired and has been succeeded by C. W. WOFFORD, manager at Waco, Tex.

CLAREL B. MAPES, general secretary of the Mid-Continent Oil and Gas Association, attended the Western Mining Congress in Salt Lake City, Utah.

W. A. SHERMAN, chief clerk of the producing department for the Texas Co. at Houston, Tex., has returned from a vacation trip to Rochester, Minn.

C. E. SAVAGE, chief scout of the eastern division of the Carter Oil Co., is in the Cragmor Sanitarium, near Colorado Springs, recovering from a recent illness.

A. M. HEWITT, president of Hanover Oil Co., of Tulsa, and ALLEN WHITESIDE and BUEL J. GARFIELD, also of Tulsa, are spending the vacation period in California.

MAURICE J. WILSON, of Baton Rouge, La., has been appointed secretary of the Louisiana Petroleum Industries Committee which will open offices in the Louisiana National Bank Building.

DR. M. BENNETT BLACKLER, formerly manager of the Egyptian Government refinery at Suez, Egypt, has been given the Order of the Nile, Third Class, by King Farouk of Egypt. Dr. Blackler was manager of the refinery from 1926 until the latter part of 1938.

HENRY LIVINGSTONE, of Fort Worth, Tex., member of the firm of Livingstone & Wellman, grandson of John Livingstone, older brother of David Livingstone, the missionary whose finding in Africa by Henry M. Stanley is the subject of a current movie, found one flaw in the production, asserting that the missionary could not sing a note.

B. NYSEWANDER, Midland, Tex., president of the Montecito Oil Corp., was taken to St. Mary's Hospital at Evansville, Ind., last week for treatment of back injuries received when the firm's plane in which he was a passenger ran out of gasoline and was forced to land in a plowed field near Evansville. Pilot George Christopherson, Amarillo, Tex., was uninjured.

Product of the West

H. W. Sanders, who became treasurer of Union Oil Co. of California August 1, was born in the little town of Marcy, in the lake region of northern New York; but he is essentially a product of the West, for as a young boy he was taken to the Pacific Coast, and most of his adult life has been spent there and in the Rocky Mountain and Mid-Continent regions. Young Sanders received his preliminary education in Los Angeles, Calif., to which city the family moved in 1909. He went back East to study business administration and economics at Cornell University, Ithaca, N. Y.

H. W. SANDERS

Shortly after leaving college the young man became assistant to L. L. Nunn, president and general manager of a utility chain in the Rocky Mountain region and founder of the Telluride Association. In 1916 was a delegate to the National Conservation Congress in Washington, D. C.

With the entrance of the United States into the World War, Mr. Sanders enlisted for service and he spent a year and a half in France and England. On his discharge he headed for Oklahoma, where he became interested in the grain and livestock business. Soon he found himself president and director of the Citizens State Bank of Minco, in Grady County, Oklahoma.

In April 1926, Mr. Sanders joined Union Oil Co., and in August 1934, he was named assistant treasurer, which position he held till his advancement to treasurer to succeed J. M. Hunt upon the latter's retirement.

G. H. ANDERSON and H. A. TOBEY, of Union Oil Co., have been appointed chief traveling auditor and division auditor respectively, the former making his office in Los Angeles and the latter moving to the northern division at Seattle, Wash.

W. T. WALLACE, vice president of Gulf Oil Corp., and head of the New York producing division, is recuperating in a Mineola, N. Y., hospital from an illness which forced him to leave the boat at Panama more than a month ago when returning from a trip to Venezuela.

ALEXANDER B. MACBETH, president and general manager, and ADDISON B. DAY, chairman of the board of Southern California Gas Co., retired from active service with the company on September 1 and have been succeeded by F. S. WADE, president of Southern Counties Gas Co. for a number of years, who will succeed Mr. Macbeth and A. F. BRIDGE, who will become general manager. Southern California Gas Co. and Southern Counties Gas Co. are affiliated through Pacific Lighting Corp.

ANTHONY FALLETTI, scout in Kansas for W. C. McBride, Inc., has been transferred to Tulsa.

PLEAS O. HARDWICK is back in his Shreveport, La., office following a business trip to New York and other eastern cities.

GEORGE SCHNEIDER, chief geologist of the Texas Co. at Shreveport, La., and his family spent their vacation in Denver, Colo.

E. B. SHAWVER, president of the Kansas Independent Oil and Gas Association, has returned from a vacation on his Colorado ranch.

JUAN M. DE LA GARZA, drilling superintendent for the Mexican Government at Mexico City, was a business visitor to Houston, Tex., the past week.

E. P. HAYES, chief petroleum engineer for the South Texas division of the Texas Co. at Houston, Tex., is spending his vacation in New Mexico.

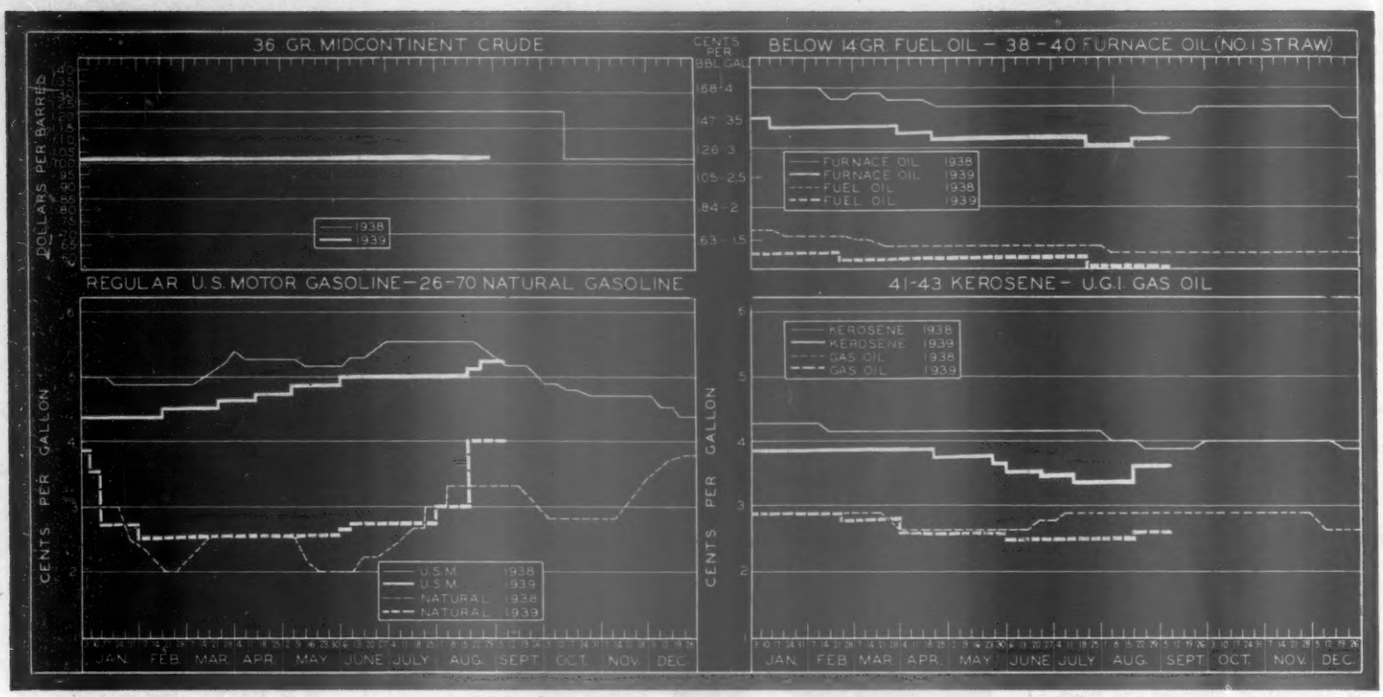
WILLIAM A. REITER, geologist and formerly with Reiter-Foster Corp. of Tulsa, and now associated with Fohs Oil Co., has been visiting the Kentucky fields.

GUY E. MILLER, who has been a member of Shell Oil Co., Inc.'s geological department at Bakersfield, Calif., has been appointed division geologist of the San Joaquin division and will maintain headquarters in Bakersfield.

DAVID B. McCONNELL, acting head of the minerals division of the Louisiana Department of Conservation, is dividing his time between New Orleans and Shreveport, where his successor as district manager has not been announced.

REESE H. TAYLOR, president of Union Oil Co.; J. U. STAIR, vice president of Shell Oil Co.; HARRY J. BAUER, of Southern California Edison Co., and PAUL SHOUP were among prominent southern Californians who welcomed DR. BENJAMIN M. ANDERSON, JR., noted New York economist, on his arrival in Los Angeles recently where he will make his future home.

Shifts: FRED L. JACOBS, engineer, Del Ray Production Co., from Liberty, Tex., to Tulsa; BRYAN W. PAYNE, vice president, Iowa Payne Oil Co., from Edmonds, Wash., to Tyler, Tex.; R. W. SAWYER, geologist, from Clarksville, Ark., to Watonga, Okla.; L. D. HIGGINS, secretary-treasurer, Gerhig Co., from Shreveport, La., to Lubbock, Tex.; E. M. HENDERSON, engineer, Oklahoma Pipe Line Co., from St. Elmo, Ill., to Tulsa; W. KEITH MILLER, geologist, Carter Oil Co., from Owensboro, Ky., to Evansville, Ind.; J. V. REYNOLDS, president, Petroleum Natural Gas Corp., from St. Louis, Mo., to Bemidji, Minn.; WAYNE COFFMAN, engineer, Cities Service Oil Co., from Bartlesville, Okla., to Russell, Kans.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Benefits of Crude Shutdown in Group 3 Market Obscured by War News

By T. F. SMILEY

Before it was possible to appraise benefits which well shutdowns in six states had imparted to refinery markets the war broke, introducing a new set of factors and increasing the element of guesswork in forecasts. Comment of Group 3 refiners revealed belief that demand for various petroleum products, especially motor fuel, lubricants, and wax, would be stimulated by the outbreak of hostilities in Europe.

As oil is not among the "implements of war" named in the present neutrality act, there is no impediment to export activities so far as laws are concerned. Whether a special session of Congress might put oil on the proscribed list is a question, but refiners generally expressed confidence no ban would be imposed.

No Clear Trend in Gasoline

The gasoline market in Oklahoma disclosed no clear trend early this week. Owners of stocks were in no hurry to sell. While there was no weakness, it was pointed out that the decline in the country's inventories resulting from the crude shutdown was not as marked as had been expected, nor did runs to stills drop as much as had been hoped. These minor disappointments were not allowed to weigh much against definite improvement in the market, which had brought prices to a point which yielded a modest profit and which had cleaned up unwieldy accumulations.

Jobber buying in preparation for the Labor Day holiday demand was not as brisk as some had expected. This was accounted for by the fact that during the crude shutdown jobbers were active buyers as a precaution against threatened failure of supplies, and many of them thus had material to draw on for the extended week end. Reports Tuesday indicated a pickup in jobber demand, and it was believed the remainder of the week would witness lively buying. The early part of September always sees highways dotted with returning vacationists and with students going back for the fall term of school. Also thousands of World Fair visitors are still on the road. So predictions were heard that September would prove almost as good a gasoline month as August had been.

An unexpected development of the past week was the improvement in the lubricant market which it revealed. It is a matter of common knowledge that large quantities of lubricating oils have been sold below published prices during the last two years. These concessions no longer are freely offered. On the contrary, it is becoming increasingly difficult to get them. One important manufacturer of lubricants declared that if demand continues to rise as it has in the past two weeks there soon will be an end of the underselling which has demoralized the lubricant market.

Neutral Stocks Favorable

The Western Petroleum Refiners Association reported that Mid-Continent refiners had 33 days' supply of neutrals at the close of July, compared with 33 at the close of June. There was 83 days' supply of bright stock at the close of July, compared with 101 at the close of June. A still heavier withdrawal from inventories is expected to be shown when the report for August is available.

The better position of the lubricants in the Mid-Continent region is in large measure a reflection of the improvement in the Pennsylvania market, where since the first of the year low pour-point neutrals have advanced 3¼ cents a gallon and high pour point 2¾ cents; low pour-point bright stock 2 cents and high pour point 1½ cents. There have been no changes of consequence in Mid-Continent quotations, but price cutting has been reduced and generally higher markets are expected in the near future.

Natural gasoline was firm at unchanged prices. Current quotations are regarded as satisfactory in their relation to the price of refinery gasoline. Wax was stronger, with quotations tightening and stocks limited. Heating oils were steady.

Refined Oil Market Barometer

Two factors have been injected into the refined oil market to remove any tendency for prices to slip. These are war in Europe and a tightened crude oil market following the 15-day shutdown of fields in six states. Export markets reflect unusual strength in neutrals, bright stocks and light fuels but price advances have not been made beyond cleaning up the scattered "bargains."

MID-CONTINENT. No general price changes but all products held tightly.

EAST COAST. Light fuels, lubricants especially strong. Export market ready to move upward.

GULF COAST. Inquiries of all classes of refined products received. Light fuels advanced ½ cent.

CALIFORNIA. Prices marking time with export market tone strong.

PENNSYLVANIA. Neutrals strong. Weight lifted over bright stocks.

CHICAGO. Strong burner oil market. All prices firm.

Eastern Markets Expect More Rapid Liquidation of Stocks

By H. STANLEY NORMAN

NEW YORK, Sept. 5.—Although gasoline prices advanced from a quarter to a half cent per gallon at primary markets during the production holiday in the Southwest, observers anticipate that the real impact on refined prices may not be fully realized for approximately 2 weeks. By exchanges and by operating on crude-oil reserve stocks, refiners of the nation east of the Rocky Mountains were enabled to maintain nearly normal operating schedules during the production shutdown period.

Permission to resume full-scale production was granted last week in the six states prohibiting or drastically restricting field withdrawals since August 15. However, the proration schedules for September in most of the six states were reduced by 10 to 15 per cent, indicating that the bullish crude market resulting from the shutdown may grow tighter during the next 2 weeks. Several refiners in the Mid-Continent and on the Gulf and East coasts had nearly exhausted their reserves of refinable crude.

Primary gasoline markets in the Mid-Continent, East Texas and the Gulf Coast advanced from a quarter to a half cent in general and as much as three-quarters of a cent in isolated instances during the shutdown. However, the tank-wagon and retail markets were slow in responding to the higher charges for wholesale material. Advances of two, three and four-tenths of a cent per gallon were made at most New York and New England marketing centers by Socony-Vacuum Oil Co., Inc., before the shutdown terminated. The increases were posted on consumer tank-car and dealer tank-wagon markets, but retail outlets were slow to follow, presumably because of the continued existence of unbranded products at levels previously prevailing.

Exceptions to Socony-Vacuum's dealer tank-wagon price advance were made in metropolitan New York, Buffalo, Rochester, Boston, and Burlington, Vt., and points in the northeastern marketing territory where retail competition is troublesome.

Because refiners continued on normal operating schedules during the crude shutdown the reduction in motor-fuel stocks in the last half of August failed to meet expectations. The reduction in gasoline stocks during the 15-day period probably did not exceed 3,000,000 bbl., but in consideration of the season this liquidation is satisfactory, observers held.

With crude stocks at or near minimum requirements in several refineries and with production regulations tightened in most of the six large southwestern oil states, a reduction is anticipated by most observers in the runs to stills throughout September. With the refinery operating rate reduced and the increased demand for export material certain to develop in view of the European situation, it is thought that liquidation of motor fuel stocks will be at a more rapid rate during the current month than is customary.

Motor-car operation in the Northeast and Middle West may continue at near midsummer rates longer this year than normal because of the New York World's Fair schedule calling for continuance until October 31. Reports in the hands of oil companies are that several thousand motorists have delayed their trips to the fair until the early fall because of the reputation of New York for heat and humidity. Furthermore, scores of people fear and avoid peak crowds as much as possible and, with school terms resuming after Labor Day, grounds of the New York fair will be much easier to negotiate, a condition which will appeal to many.

Two cargoes of 72-octane motor fuel were reported sold on the Gulf Coast last week at 5¾ cents per gallon, an advance of a quarter of a cent over the price prevailing for this quality of material prior to the production shutdown. The Gulf market was generally unsettled, partly because of the unwillingness of refiners to quote for forward delivery and partly due to continued selling by certain interests at figures slightly under the general market. There had been a gradual depletion of available motor-fuel offerings at less than the full general market, however, until such supplies had practically disappeared near the end of the shutdown period.

The immediate and near-future prospects for refined-petroleum markets depends entirely upon the rigidity with which regulatory bodies in the southwestern oil states enforce their new production schedules. Indications are that the schedules are reasonably well geared to the actual demand as it existed prior to the price cut and shutdown.

Advances during the past 2 weeks in light fuel oils have been well supported throughout the northeastern section. However, there is doubt that kerosene and No. 2 and No. 3 fuel-oil price advances were directly associated with the production shutdown since seasonal demand had dictated this market bulge well in advance of the crude-oil production disturbance. Reports in the northeastern market confirm the earlier impression that light fuel-oil consumption will touch new peaks this winter and refiners are not too anxious to push material on the market even at prevailing prices. Most suppliers on the Gulf Coast are currently quoting 3¾ cents per gallon for No. 2 fuel oil in cargo quantities in the spot market, although by shopping prospective purchasers may find limited stocks available at 3⅝ cents. Kerosene has moved up approximately an eighth of a cent per gallon in the cargo market during the past 10 days and 4 cents is the price most generally quoted in the trade.

There has been no change in the Bunker C fuel-oil market which remains at $1.05 per barrel in New York and at a range of 78 to 80 cents per barrel to the cargo trade on the Gulf. This product will be carefully watched by both consumers and sellers during the immediate future because of its important position in military and naval operations.

Demand by the established steamship lines during the European situation will dip sharply, marketers admit, although boats leaving New York Harbor last week without passengers for home ports in Germany, France and England carried maximum cargoes of petroleum, over and above bunker capacity.

The abnormally heavy movement of fuel oils and gasoline was insufficient to move the market forward immediately but the impact probably will be felt in the near future.

Neutral oils continued to occupy the strongest market position in the western Pennsylvania refining district as jobbers and consumers ordered out large supplies for blending. Several neutral suppliers on the low side of the market range elevated their prices a half cent per gallon and converted their position to the high of the bracket. One refiner was reported to have withdrawn from the spot market and was forced into interrefinery transactions to meet immediate demand from contract customers.

A. P. I. Weekly Refinery Statistics

Figures for the week ending September 1 not available owing to Labor Day holiday

Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATE)

Week ending August 26, 1939	246,982,000 barrels
Week ending August 19, 1939	262,486,000 barrels
Week ending August 27, 1938	285,029,000 barrels

Figures do not include stocks of heavy, unrefinable California crude.

Retail Oil Markets

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of September 5, 1939

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county, and city taxes. The gasoline is the regular or standard grade. In most areas lower grades and a premium grade also are available.

Standard Oil Co. (Indiana)

	Gasoline Tank wag.	Dir.	Inc. tax	Kero. tank wag.
Chicago, Ill.	15.1	13.1	4.0	10.0
Decatur	15.1	13.6	4.0	10.0
Joliet	15.1	13.6	4.0	10.0
Peoria	15.1	13.6	4.0	10.0
Quincy	14.9	13.4	4.0	9.8
Davenport, Ia.	15.1	13.6	4.0	‡10.0
Des Moines	14.9	13.4	4.0	‡9.8
Mason City	15.3	13.8	4.0	‡10.2
Duluth, Minn.	16.9	15.4	5.0	10.8
Mankato	*6.5	15.0	5.0	9.4
Minneapolis	16.5	15.0	5.0	10.4
LaCrosse, Wis.	16.5	15.0	5.0	10.4
Green Bay	16.9	15.4	5.0	10.0
Milwaukee	16.3	14.8	5.0	10.2
Detroit, Mich.	13.6	12.1	4.0	7.1
Grand Rapids	14.0	12.5	4.0	9.7
Saginaw	15.8	13.3	4.0	9.3
Evansville, Ind.	16.6	15.1	5.0	†10.5
Indianapolis	16.8	15.3	5.0	†10.7
South Bend	17.1	15.6	5.0	†10.0
Fargo, N. D.	17.7	16.2	5.0	11.6
Huron, S. D.	17.0	15.5	5.0	10.9
Kans. City, Mo.*	14.4	12.9	4.0	8.0
St. Louis*	14.7	13.2	4.0	8.0
St. Joseph	14.4	12.9	4.0	7.9
Wichita, Kans.	13.9	10.6	4.0	7.4

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Does not include 3-cent state tax.

Exclusive of state general sales taxes.

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gal. or more, 1.5 cents off; minimum delivery 25 gal.

Stanolex Fuel Oil in Chicago

Effective June 1, 1939, f.o.b. Chicago tank-wagon prices: Standard range oil, 1-99 gal., 9 cents; 100-149 gal., 8 cents; 150 gal. and over, 7.5 cents. Stanolex fuel oil No. 1, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex furnace oil, 1-149 gal., 8.25 cents; 150-399 gal., 7.25 cents; 400 gal. and over, 6.75 cents. Stanolex Grade A, 1-399 gal., 5 cents; 400 gal. and over, 4 cents. Stanolex Grade B, 1-799 gal., 5 cents; 800 gal. and over, 4 cents. Stanolex Grade C, 1-999 gal., 4.25 cents; 1,000 gal. and over, 3.25 cents.

Ohio

STANDARD OIL CO. OF OHIO

	Tank-wag. cons'r.	Divided dlr.	Inc. tax	Kero. tank wag.
Ohio points	15.5	14.5	5.0	*13.0

*Includes state tax of 1 cent.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline Cons'r. tank car	Dir. tank wag.	Inc. tax	Kero. tank wag.
Atl'tic City, N. J.	10.9	12.7	4.0	7.0
Newark	10.9	12.7	4.0	7.0
Annapolis, Md.	12.85	14.35	5.0	9.5
Baltimore	12.25	13.75	5.0	7.5
Cumberland	13.65	16.15	5.0	10.0
Wash'gton, D. C.	10.50	12.0	3.0	9.5
Danville, Va.	14.45	16.95	6.0	12.9
Norfolk	13.25	15.75	6.0	10.5
Petersburg	13.55	16.05	6.0	11.7
Richmond	13.55	16.05	6.0	10.7
Roanoke	14.75	17.25	6.0	11.0
Charles'n, W. Va.	14.05	16.55	6.0	12.6
Parkersburg	13.35	14.85	6.0	11.2
Wheeling	14.35	15.75	6.0	12.2
Charlotte, N. C.	15.40	17.90	7.0	11.8
Hickory	15.95	18.45	7.0	12.3
Mt. Airy	15.80	18.50	7.0	12.2
Raleigh	15.15	17.65	7.0	11.5
Salisbury	15.45	17.95	7.0	11.9
Charleston, S. C.	14.25	16.75	7.0	10.6
Columbia	15.10	17.60	7.0	11.5
Spartanburg	15.80	18.30	7.0	12.2

Price basis to Essolene undivided dealers: Dealer tank-wagon price less 0.5 cent per gallon. Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 12 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective January 16, 1939, in North Carolina the commercial consumer schedule became as follows: Single deliveries of 50 gallons or more, consumer tank-wagon price. Single deliveries of less than 50 gallons, 4 cents per gallon over consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price, less .5 cent per gallon. The above policy also applies in South Carolina effective January 23, 1939.

Discounts for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. (KENTUCKY)

	Gasoline Cons'r. tank-wag.	Net dlr.	Inc. tax	Kero. tank-wag.
Atlanta, Ga.	20.0	17.0	7.0	9.0
Augusta	20.0	17.0	7.0	9.0
Macon	20.0	17.0	7.0	10.0
Savannah	19.0	16.0	7.0	8.0
Birmingham, Ala.	21.0	18.0	8.0	8.5
Mobile	21.0	18.0	9.0	8.5
Montgomery	22.0	19.0	9.0	10.5
Jackson, Miss.	19.0	16.0	7.0	9.5
Vicksburg	19.0	16.0	7.0	9.0
Jacksonville, Fla.	20.0	17.0	8.0	8.0
Miami	19.5	16.5	8.0	8.0
Pensacola	21.0	18.0	9.0	8.0
Tampa	19.5	16.5	8.0	7.5
Lexington, Ky.	19.5	16.5	6.0	10.0
Covington	17.5	14.5	6.0	9.5
Louisville	18.5	15.5	6.0	9.0
Paducah	17.0	14.0	6.0	9.0

Price basis to tank-wagon consumers: Effective January 4, 1937; 3 cents per gallon below tank-wagon price.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola, Fla., has a city gasoline tax of 1 cent. All are included in the table.

Pennsylvania and Delaware

ATLANTIC REFINING CO.

	Gasoline Cons. tank-car	Dir. tank-wag.	Inc. tax	Kero. tank-wag.
Philadelphia, Pa.	12.0	13.5	5.0	10.0
Pittsburgh	13.0	14.5	5.0	10.5
Allentown	12.5	14.0	5.0	10.5
Erie	13.0	14.5	5.0	10.0
Scranton*	13.0	14.5	5.0	10.5
Altoona	13.0	15.0	5.0	10.5
Dover, Del.	...	14.0	5.0	10.5
Wilmington	...	13.5	5.0	9.75

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. *Voluntary discount of 1 cent allowed to dealers only.

Discount on kerosene, 2 cents per gallon off tank-wagon price on tank-wagon deliveries of 25 gal. or more at one time.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline Cons. tank-car	Dir. tank-wag.	Inc. tax	Kero. tank-wag.
Albany	11.9	14.2	5.0	7.25
*Met. N. Y.:				
Manhat., Bronx	11.9	13.0	5.0	7.00
Queens, Br'klyn	11.9	13.0	5.0	7.00
Staten Island	11.9	13.0	5.0	7.00
Buffalo	12.5	13.5	5.0	7.50
Rochester	12.8	14.0	5.0	7.75
Syracuse	12.4	14.4	5.0	7.50
Boston	10.8	12.25	4.0	6.75
Portland, Me.	11.8	13.8	5.0	7.00
Manchester, N.H.	12.5	14.7	5.0	7.50
Burlington, Vt.	12.4	13.5	5.0	7.50
Springfield, Mass.	11.5	12.5	4.0	6.25
Worcester	11.4	13.0	4.0	7.25
Hartford, Conn.	11.2	13.3	4.0	6.75
New Haven	11.1	13.01	4.0	6.25
Providence, R. I.	10.8	12.8	4.0	6.75

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes. Metropolitan New York prices are undivided dealer prices; others are split dealer.

Effective February 15, 1939, the company changed its commercial consumer policy in New York and New England points for tank-wagon delivery to the following: Annual purchases 10,000 gallons and under, tankcar price plus 2 cents per gallon; annual purchases 10,000 gallons up to 50,000 gallons, tankcar price plus 1.5 cents per gallon; annual purchases 50,000 to 200,000 gallons, tankcar price plus 1 cent per gallon; annual purchases 200,000 gallons and over, tankcar price plus one-half cent per gallon. Private consumers pay undivided dealer price, plus 2 cents per gallon. Private consumers receiving full compartment deliveries of at least 200 gallons receive a discount of one-half cent per gallon.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline Tank-truck	Serv. sta.	Inc. tax	Kero. tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	10.0
Fresno, Calif.	18.5	19.5	4.0	12.5
Phoenix, Ariz.	20.0	21.0	6.0	*17.5
Reno, Nev.	20.5	21.5	5.0	13.5
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle ,Wash.	20.0	21.0	6.0	†13.75
Spokane	21.5	22.5	6.0	†16.75
Tacoma	20.0	21.0	6.0	†13.75

*Includes 5-cent state tax. †Includes .25-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents. To commercial consumers: On tank-wagon price; on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

March 18, 1939, split dealer discount was canceled.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline Tank-wag.	Dir.	Incl. tax	Kero. tank-wag.
Denver, Colo.	15.5	...	5.0	11.5
Grand Junction	18.5	...	5.0	15.0
Pueblo	16.0	...	5.0	9.0
Casper, Wyo.	17.5	...	5.0	11.5
Cheyenne	15.5	...	5.0	13.0
Billings, Mont.	18.5	...	6.0	13.0
Butte	20.0	...	6.0	15.5
Great Falls	19.5	...	6.0	15.5
Helena	20.5	...	6.0	15.5
Salt Lake, Utah	17.5	17.5	5.0	16.0
Boise, Idaho	20.6	20.6	6.0	18.0
Twin Falls	21.1	21.1	6.0	18.0
Albu'que, N. M.	17.0	17.0	6.5	10.0
Roswell	15.5	15.5	6.5	8.0
Santa Fe	17.5	17.5	6.5	10.0

*Includes city tax of .5 cent. †Includes state tax of 1 mill.

Tank-wagon represents price to consumers. Dealer represents price to dealers. If no dealer price is quoted, the tank-wagon price applies to all classes of trade.

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline Cons. tank-car	Dir. tank-wag.	Inc. tax	Kero. tank-wag.
New Orleans, La.	16.75	19.25	*10.0	†11.0
Baton Rouge	14.75	17.25	8.0	‡10.5
Alexandria	14.75	17.25	8.0	‡12.5
Lafayette	15.00	17.50	8.0	‡11.0
Lake Charles	14.75	17.25	8.0	‡12.5
Shreveport	13.50	16.00	8.0	‡11.0
Knoxville, Tenn.	18.00	20.50	8.0	14.5
Memphis	16.00	18.50	8.0	11.0
Chattanooga	17.5	19.5	8.0	12.0
Nashville	17.00	19.50	8.0	11.0
Bristol	18.25	17.00	8.0	13.0

Essolene at dealer price less .5 cent per gallon to undivided dealers.

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax. ‡Includes 1-cent state tax.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one territory take posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less 0.5 cent per gallon. Kerosene prices include 1-cent state tax.

Effective February 24, 1939, the company reestablished in New Orleans the commercial consumer policy on motor fuel effective in the rest of the state.

Effective December 12, 1938, the company revised its commercial consumer policy on motor fuel in New Orleans, as follows: Single deliveries of less than 50 gal., consumer tank car plus 2 cents per gallon; 50 to 199 gal., consumer tank car plus 1 cent per gallon; 200 gal. and over, consumer tank car plus 0.5 cent per gallon.

Nebraska

STANDARD OIL CO. (NEBRASKA)

	Gasoline Tank wag.	Dir.	Inc. tax	Kero. tank wag.
Omaha	17.5	16.0	6.0	10.3
McCook	16.5	14.9	6.0	9.0
Norfolk	17.0	15.9	6.0	9.0
North Platte	18.3	16.8	6.0	11.1
Scottsbluff	18.0	16.0	6.0	11.0

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective January 1, 1935.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline Tank wag.	Includes tax	Kero. tank wag.
Texarkana, Ark.	14.0	5.0	8.0
Fort Smith	14.0	5.0	7.5
Little Rock	16.75	7.5	8.0
Muskogee, Okla.	13.0	5.0	7.0
Oklahoma City	12.0	5.0	6.5
Tulsa	13.0	5.0	7.0

The tank-wagon price is the price to all classes of trade.

Texas

	Gasoline Tank wag.	Serv. sta.	Inc. tax	Kero. tank wag.
Dallas, Tex.	14.0	18.0	5.0	7.0
Fort Worth	15.0	19.0	5.0	8.0
Houston	14.0	18.0	5.0	8.0
San Antonio	14.0	18.0	5.0	8.0

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax but not 1-cent federal tax nor 2 per cent retail occupational tax.

Prices f.o.b. Chicago. Each price subject to discount of 1 cent per gallon for 150-gal. lots if covered by contract.

Canada*

3-Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank wag.	Inc. tax	Kero. tank wag.
Halifax, N. S.	23.5	10.0	17.5
St. John, N. B.	23.5	10.0	17.5
Montreal, Que.	22.0	8.0	14.5
Toronto, Int.	23.0	8.0	15.5
Hamilton, Ont.	23.0	8.0	15.5
Winnipeg, Man.	26.5	7.0	20.5
Brandon, Man.	28.0	7.0	22.9
Regina, Sask.	26.0	7.0	22.0
Saskatoon, Sask.	28.3	7.0	24.9
Edmonton, Alta.	19.4	7.0	21.4
Calgary, Alta.	23.5	7.0	19.0
Vancouver, B. C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon prices. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon price.

Tank-Wagon Changes

Standard Oil Co. (Indiana) August 12 reduced tank-wagon kerosene 0.8 cent in Green Bay.

Continental Oil Co. August 23 advanced gasoline 1.5 cents in Denver.

Standard Oil Co. (Nebraska) August 29 advanced dealer gasoline 2 cents in McCook.

Standard Oil Co. (Kentucky) August 22 reduced consumer tank-wagon and net dealer gasoline 0.5 cent in Tampa; August 26, reduced consumer tank-wagon and net dealer gasoline 0.5 cent in Atlanta.

Socony-Vacuum Oil Co., Inc., August 24 made the following gasoline advances in its New York and New England marketing territory: Albany, raised tank car 0.4 and tank wagon 0.4 of a cent; Manhattan, Bronx, Queens, Brooklyn and Staten Island, raised tank-car prices 0.3 of a cent; Rochester, N. Y., raised tank-car

(Continued on Page 115)

Prices of Refined Products

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of September 5, 1939

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents a gallon on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:

62 octane and below	.04½	.04⅝
63-66 octane	.04⅝	.04¾
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
60-62 400 grades:		
62 octane and below	.04½	.04⅝
63-66 octane	.04⅝	.04¾
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
64-66 375		.04⅜
68-70 360	.05	.05⅛

NORTH TEXAS—

U. S. Motor grades:

62 octane and below	.04½	.04⅝
63-66 octane	.04⅝	.04¾
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
60-62 400	.04½	.04⅝
64-66 375		.04⅜

NORTH LOUISIANA (Ark. and N. La. delivery)—

U. S. Motor grades:

62 octane and below	.04½	.04⅝
63-66 octane	.04⅝	.04¾
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜

ARKANSAS (Ark. and N. La. del.)—

U. S. Motor grades:

62 octane and below	.04½	.04⅝
67-69 octane	.05	.05⅛
70-72 octane	.05⅛	.05½

CHICAGO (Based on Group 3)—

U. S. Motor grades:

62 octane and below	.04½	.04⅝
63-66 octane	.04⅝	.04¾
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
60-62 400 grades:		
62 octane and below	.04½	.04⅝
63-66 octane	.04⅝	.04¾
67-69 octane	.05	.05⅛
70-72 octane (regular)	.05⅛	.05⅜
68-70 360	.05	.05⅛

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:

Below 60 octane	.04½	.05
65 octane	.06⅛	.06⅜
68-70 octane		.06½

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.06¼	.08
58-60 400, 65 oct. and higher	.07¼	.09

EAST COAST (domestic)—

U. S. Motor, 65 and above:

*New York (Bayonne)	.06	.06¼
Philadelphia	.06	.06¼
Baltimore	.06	.06¼
Charleston, S. C.	.06½	.06¾

*All grades of gasoline ⅛ to ¼ cent less for barge shipments. New York Harbor prices are for New York and New England delivery. Prices for New Jersey delivery ¼ cent lower.

GULF COAST (domestic)—

U. S. Motor grades:

Below 60 octane	.04½	.04⅝
65-67 octane		.05¼
68-70 octane		.05⅜

Naphtha

PENNSYLVANIA (inland refineries)—

52-56 450 (blending)	.04¼	.04½

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.04
Grade 18-55	.04⅝	.04⅝

NORTH TEXAS—

Grade 26-70		.04
Grade 18-55	.04⅝	.04⅝

CALIFORNIA—

75-85 375-390	.05½	.06½

NORTH LOUISIANA (Ark. and N. La. delivery)—

Grade 26-70	.04⅝	.04⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110-flash, 540-550 e.p.	.03½	.03⅝
41-43 gr., 300-320 l.b.p., 110-125 flash, 500-520 e.p.	.03⅝	.03¾
46-48 gr., 210-230 l.b.p., 480-max., e.p.	.03⅞	.04⅛

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.03⅝	.03¾
42-44	.03¾	.03⅞

NORTH TEXAS—

41-43	.03⅝	.03¾

NORTH LOUISIANA (Ark. and N. La. delivery)—

41-43	.03¾	.04

ARKANSAS (Ark. and N. La. del.)—

41-43	.04⅛	.04¼

PENNSYLVANIA (inland refineries)—

45	.04⅞	.05
46	.05	.05⅛
47	.05⅛	.05¼

CHICAGO (Based on Group 3)—

41-43	.03⅝	.03¾
42-44	.03¾	.03⅞

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.05⅛

NEW YORK (Bayonne, N. J.)—

41-43		.04⅝

GULF COAST (domestic)—

41-43	.03½	.03⅝

*Barge price ⅛ cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

Range oil	.03⅜	.03½
No. 1 prime white, 38-42	.03¼	.03⅜
No. 1 straw, 38-40	.03⅛	.03¼
No. 2 straw, 32-36	.03	.03⅛
No. 2 dark, 32-36	.02¾	.02⅞
No. 3 zero to 15, 28-32	.02⅝	.02¾
No. 3, 15 and above, 28-32	.02½	.02⅝

NORTH TEXAS—

No. 1 prime white, 38-42	.03¼	.03⅜
No. 1 straw, 38-40	.03⅛	.03¼

NORTH LOUISIANA (Ark. and N. La. delivery)—

No. 2, 32-36	.03	.03⅛

ARKANSAS (Ark. and N. La. del.)—

No. 2, 32-36	.03⅜	.03½

CHICAGO (Based on Group 3)—

Range oil	.03⅜	.03⅝
No. 1 prime white, 38-40	.03⅝	.03½
No. 1 straw, 38-40	.03¼	.03⅜
No. 2 straw, 32-36	.03⅛	.03¼
No. 2 dark, 32-36	.03	.03⅛
No. 3, zero to 15, 28-32	.02½	.03
No. 3, 15 and above, 28-32	.02⅝	.02¾

NEW YORK (Bayonne, N. J.)—

*No. 1	.04	.04¼
*No. 2		.03¾
*No. 4		.03¾

*Barge deliveries ⅛ to ¼ cent under above tank-car price.

Gas Oil and Fuel Oil

(Gas oil per gal., fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.02⅝	.02¾
No. 4 low pour point, 24-28	.95	1.00
No. 4, 15 and above, 24-28	.85	.90
No. 5, low pour point, 18-22	.70	.75
Below 14 fuel oil, industrial	.40	.50

NORTH TEXAS—

U.G.I. gas oil	.02⅝	.02¾
No. 4, low pour point, 24-28	.95	1.00
No. 5, low pour point, 18-22	.70	.75
Below 14 fuel oil, industrial	.40	.50

NORTH LOUISIANA (Ark. and N. La. delivery)—

10-14 fuel oil, industrial	.70	.75

CHICAGO (Based on Group 3)—

U.G.I. gas oil	.02⅝	.02⅞
No. 4, low pour point, 24-28	.100	1.10
No. 4, 15 and above, 24-28	.85	.95
No. 5, low pour point, 18-22	.70	.80
No. 5, 15 and above, 18-22	.60	.70
No. 6, low pour point, 10-16	.60	.70
No. 6, 15 and above, 10-16	.35	.45

PENNSYLVANIA (inland refineries)—

38-40	.04¼	.04⅝

CALIFORNIA—

Los Angeles:

30-40 gas oil, per bbl.	1.10	1.30
24 plus diesel, per bbl.	.80	1.15
24 plus diesel (bunkers)	1.15	1.30
12-16 (bunkers at tidewater)	.70	.90
10-16 (cargo lots)	.60	.70
12-17 (tank cars)	.50	.90
10-17 (high sulfur)	.45	.85
San Joaquin Valley:		
10-18 (tank cars)	.50	.75
24 plus diesel, per bbl.	.90	1.20
San Francisco:		
24 plus diesel, per bbl.	1.30	1.45
24 plus diesel (bunkers)	1.35	1.55
10-16 (bunkers)	.90	.95

GULF COAST—

No. 2 fuel		.03¾
43-47 diesel		.03¼
48-52 diesel	.03¼	.03⅜
53-57 diesel	.03⅜	.03½
Bunker C (bulk cargoes)	.77	.80
Bunker C (bunkers)	.80	.85

NEW YORK (Bayonne, N. J.)—

27 plus, gas oil		.04
28-30 diesel (lighterage 6¼c per bbl.)		1.65
28-30 diesel (tank cars)	.04	.04¼
Bunker C (to ocean-going ships in N. Y. Harbor)		1.05
Industrial fuel (tank cars)		.03¾

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

190-200 D, 15-25		.19
150-160 D, 0-10	.14¼	.16
150-160 D, 15-25	.13½	.15½
150-160 E, 15-25	.13	.15
100-110 D, 0-10		.14½
Steam-refined:		
631 green (treated)		.12⅛
600 dark green (untreated)	.04½	.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 140-150 at 210, 545-550 flash):

10 pour point	.19	.20
15 pour point	.18	.19
25 pour point	.16	.17
Steam-refined:		
600	.08½	.10
650	.10½	.11
600 flash	.11	.12
630 flash	.13½	.14

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

150-3		.09
180-3		.10
180-4		.09½
200-3		.10½
200-4		.10
250-3		.11½
250-4		.11
280-3		.12½
280-4		.12
300-6½		.13
400-3½		.14
100-2½ paraffin oil		.06
15-20 pour point:		
200-3		.10
200-4		.09½
250-3		.11
250-4		.10½
280-3		.12½
280-4		.12

GULF COAST—

Pale oils:

200-3	.07	.07¼
300-3	.07½	.07⅝
500-3½	.08½	.08⅝
750-3½	.08⅝	.09⅛
1,200-3½	.09½	.09¾
1,500-4	.09¾	.10
Red oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale oils:

100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¾	.11½
700-6½ plus	.09¾	.11½
750-6½ plus	.09¾	.11½
900-6½ plus	.09¾	.11½

PENNSYLVANIA—

150 vis. at 70° F., 3 color, 400-405 flash:

Zero pour point	.18½	.19
10 pour point	.18	.18½
15 pour point	.16½	.17
25 pour point	.15	.15½
200 vis. at 70° F., 3 color:		
Zero pour point	.20	.20½
10 pour point	.19½	.20
15 pour point	.19	.19½
25 pour point	.17½	.18

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (A.m.p.) w.c. scale	.0285	.03

PENNSYLVANIA (inland refineries)—

122-124 (A.m.p.) w.c. scale	2.90	3.00
124-126 (A.m.p.) w.c. scale	2.90	2.95

NEW YORK—

Wax in bags fully refined:

123-125 (A.m.p.) wax		.0375
125-127 (A.m.p.) wax		.0390
128-130 (A.m.p.) wax		.0400
130-132 (A.m.p.) wax		.0435
133-135 (A.m.p.) wax		.0465
135-137 (A.m.p.) wax		.0490
124-126 (A.m.p.) w.s.	.0290	.03
124-126 (A.m.p.) y.s.	.0295	.03
Petrolatum in barrels, carload lots:		
Dark green	.02	.02½
Amber	.02⅝	.02⅞
Extra amber	.02⅝	.02⅝
Lily white	.05¼	.05½
Snow white	.06½	.06¾
Cream	.04½	.04¾

Export Prices

GASOLINE

GULF COAST—

U. S. Motor	.04¼	.04⅜
60-62 400	.04⅝	.04½
65 octane	.04⅞	.05
68 octane	.05¼	.05¼
70 octane	.05⅝	.05⅝

LOS ANGELES—

U. S. Motor grades:

55-65 octane	.04⅛	.04⅛
65-69 octane	.04⅛	.04⅜
Above 69 octane	.04⅜	.05¼

KEROSENE

GULF COAST—

41-43 prime white		.03½
41-43 water white		.03½

LOS ANGELES—

41-43 water white	.05	.05¼

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.o.s.) in bbls.)—

Cylinder stocks:

600 S.R. unfiltered	.15½	.16
650 S.R. unfiltered	.17½	.18
600 flash, S.R.	.18	.18½
630 flash, S.R.	.20½	.21
Bright stocks:		
8 color	.23½	.24

NEUTRAL OIL

200-3 color	.24	.24½
150-3 color	.22	.22½

PARAFFIN WAX

NEW YORK (prices per pound)—

123-125 A.m.p.		.03625
125-127 A.m.p.		.0375
128-130 A.m.p.		.0400
133-135 A.m.p.		.0425
135-137 A.m.p.		.0465
Crude scale:		
124-126 w.s.	.0285	.0290
124-126 y.s.	.0280	.0285

Crude Oil Prices

Oklahoma, Kansas, North Central and East Central Texas

East Texas (Oct. 11, 1938)* $1.10
Shell, Sinclair Prairie, De Soto and Cities Service companies are on a gravity basis in East Texas, with a top price of $1.10 for 39° and above.
Van, Tex. (Oct. 11, 1938)* $0.93
Talco, Tex. (Oct. 11, 1938)* ..... .55
Rodessa, Tex. .....
See North Louisiana gravity schedule
Cass and Panola counties, Texas ....
See gravity schedule
Altus and Tipton† ..... See note below
Cayuga, Tex. (Feb. 15, 1939) $0.68
Clay Creek, Tex. ..... .85

*Humble Oil & Refining Co. †Gulf Refining Co. Pure Oil Co.'s Van price, 93 cents, effective Oct. 13, 1938.
Altus and Tipton, Oklahoma, starting at below 25° at 71 cents, 2-cent spread to 40° and above at $1.03. East Texas price met by all buyers posting prices. Talco price adopted by Talco Pipe Line on Oct. 11. Cayuga posted by Pan American Pipe Line Co. Clay Creek posted by Sun Oil Co.

Southwest Texas

Salt Creek, Darst Creek, Hilbig, Carroll, Clark and Zoboroski (Oct. 11, 1938)* $0.96
Pettus (Oct. 11, 1938)* 1.29
Flour Bluff (Dec. 3, 1938)* 1.23
Darst Creek (Oct. 12, 1938)† ..... .96
Darst Creek and Bruner (Oct. 13, 1938)‡ ..... .96
Luling (Oct. 12, 1938)† ..... .87
Lytton Springs (Oct. 12, 1938)† ..... .99
Mirando (Oct. 12, 1938)† .....
Government Wells (Oct. 13, 1938) .....
See note below

*Humble Oil & Refining Co. †Magnolia Petroleum Co. Pettus price adopted by Atlantic Crude Oil Purchasing Co. ‡Gulf Refining Co.
Government Wells posted by Sun Oil Co. starts at 20° at 77 cents, 3-cent spread to 24°-24.9° at 89 cents.

Gulf Coast

Conroe, Tex. (Oct. 11, 1938)* $1.27
Black Bayou and White Castle, La. (Oct. 11, 1938)† ..... See note below
Gibson, La. (Oct. 11, 1938)† $1.04
Garden Island, La. (Oct. 12, 1938)‡ .. 1.24
Lafitte, La. (Oct. 12, 1938)‡ 1.04
Cleveland, Tex. (Oct. 12, 1938)¶ 1.14
Schwab, Polk County (Feb. 20, 1939) 1.00
Hardin, Tex. (Oct. 12, 1938)¶ 1.02
Tepetate, La. (Oct. 11, 1938)§ 1.03
Villa Platte, La. (Oct. 11, 1938)§ 1.03
Abbeville, La. (Jan. 1, 1939)§ .....
See note below
Bosco, La. (Dec. 3, 1938)‖ $0.93
Creole, La. (Oct. 13, 1938)‖ ..... .96
Gueydan, Sweet Lake, and Louise, La. (Oct. 13, 1938)‖ ..... See note below
Vinton, Edgerly, Starks, Hackberry, Timbalier Bay, Quarantine Bay, and Grand Bay, La. (Oct. 13, 1938)** .....
Long Lake, Tex. (Oct. 13, 1938)** ... $1.08
Segno and Wing (Oct. 13, 1938)** .....
See note below
Livington (Oct. 11, 1938)† $1.10
Gibson, La. (Oct. 11, 1938)† 1.04
Evangeline, La. (July 7, 1939) .... .98

*Humble Oil & Refining Co. †Shell Oil Co., Inc. ‡Texas Co. §Continental Oil Co. ‖Pure Oil Co. ¶Magnolia Petroleum Co. **Gulf Refinery Co.
Black Bayou, etc., starts at below 20° at 79 cents; 20°-20.9°, 81 cents; 21°-21.9°, 83 cents; then a 3-cent spread to 26°-26.9°, 98 cents; then a 2-cent spread to 40° and over at $1.14. Abbeville starts at below 36°, 92 cents, 2-cent spread to 40° and over at $1.02. Gueydan, etc., starts below 20°, 79 cents, 3-cent spread to 26°-26.9° at $1, and 2-cent spread to 40° and over at $1.28. Segno and Wink take Gulf Refining Co.'s Gulf Coast prices. Vinton, Edgerly, etc., schedule starts at below 18°, 75 cents, 2-cent spread to 20°-20.9° at 82 cents; then a 3-cent spread to 26°-26.9° at $1; then a 2-cent spread to 34° and over at $1.16. Schwab posted by Shell Oil Co., Inc. Evangeline, La., posted by Standard Oil Co. of Louisiana.

Middle Western States

OHIO OIL CO.
(Effective June 8, 1939)

Illinois old fields $0.95
Illinois basin 1.05
Princeton, Ind. ..... .95
Western Kentucky (June 9, 1939)† .. .90
Birk City, Ky. (June 9, 1939)¶ ..... .90
Corydon, Ky. (June 9, 1939)¶ ..... .90
Greendale, Porter, Crystal and Wise, Mich. (Apr. 20, 1938)*† ... .975
Buckeye, Bentley, Edenville, Beaverton, Mich. (Apr. 20, 1939)* ..... .95
Freeman-Redding, Mich. (Apr. 20, 1939)* ..... .89
West Branch and Arenac, Mich. (Apr. 20, 1939)* $0.74
Allegan-Kent (June 21, 1939)§ ..... .85
Bloomingdale (July 17, 1939) ..... .83
Muskegon 1.00
Sherman, Mich. (Apr. 20, 1939)‡ ..... .89

Eastern Kentucky:
Big Sandy River (June 9, 1939)† .. $1.02
Kentucky River (June 9, 1939)† .. 1.10

*Simrall Corp. †Ashland Refining Co. ‡Pure Transportation Co. pays above posted prices in Porter, Greendale and Sherman, effective Apr. 20. §Imperial Refining Co. ¶Sohio Oil Co. Bloomingdale posted by Tri-Lakes Corp. Kent County by Naph-Sol Refining Co.

West Texas

See gravity table.
Fisher County, Texas (Apr. 1, 1939) .....
See note below
Pecos County (Oct. 11, 1938)* $0.78
Pecos shallow (Oct. 11, 1938)† ..... .65

*Shell Oil Co., Gulf Pipe Line Co. and Humble Oil & Refining Co. †Shell Oil Co.
Fisher County, Texas, by Shell Oil Co., Inc., below 25°, 68 cents; 25°, 70 cents, with 2-cent spread to 40° and over at $1.

Crude Prices by Gravities

	1 Oklahoma	2 Oklahoma and Kansas	3 North and Central Texas	4 Louisiana and Arkansas	5 East Central Texas	6 Gray County, Texas	7 Hutchinson and Carson counties, Texas	8 Raccoon Bend, Saxonna and Tomball, Texas	9 West Texas and Lea County, N. M.	10 Fort Collins and Wellington, Colo.	11 Anahuac and Dickinson, Mirando, Duval, Texas.	12 Refugio, Texas	13 Gulf Coast Texas	14 Cass and Panola counties, Texas	15 Beaumont and West Beaumont, Texas	16 Lockport, Iowa, Cameron Meadows, Louisiana	17 Artesia, Jackson and Maljamar, N. M.	18 Iowa, Louisiana
Below 18	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	$1.74	....	$1.75
18-18.9	....	....	....	....	....	....	....	....	$1.53	....	$1.74	$1.79	$1.79	....	....	1.76	....	1.77
19-19.9	....	....	....	....	....	....	....	....	1.53	....	1.74	1.79	1.79	....	$1.79	1.78	....	1.79
20-20.9	$1.00	$1.70	....	....	....	....	....	....	1.55	....	1.77	1.82	1.82	....	1.82	1.80	....	1.81
21-21.9	1.03	1.72	....	....	....	....	....	....	1.57	....	1.80	1.85	1.85	....	1.85	1.82	....	1.83
22-22.9	1.06	1.74	....	....	....	....	....	$1.95	1.59	....	1.83	1.88	1.88	....	1.88	1.85	....	1.86
23-23.9	1.09	1.76	....	....	$1.76	....	....	1.97	1.61	....	1.86	1.91	1.91	....	1.91	1.88	....	1.89
24-24.9	1.72	1.78	$1.71	....	1.80	....	....	1.99	1.63	....	1.89	1.94	1.94	....	1.94	1.91	....	1.92
Below 25	....	....	....	$1.73	....	....	....	....	....	....	....	....	....	$1.73	....	....	....	....
25-25.9	1.75	1.80	1.73	1.75	1.82	....	....	1.01	1.65	....	1.92	1.97	1.97	1.75	1.97	1.94	....	1.95
26-26.9	1.78	1.82	1.75	1.77	1.84	....	....	1.03	1.67	....	1.95	1.00	1.00	1.77	1.00	1.97	....	1.98
27-27.9	1.81	1.84	1.77	1.79	1.86	....	....	1.05	1.69	....	1.97	1.02	1.02	1.79	1.02	1.99	....	1.00
28-28.9	1.84	1.86	1.79	1.81	1.88	$1.72	$1.67	1.07	1.71	$1.81	1.99	1.04	1.04	1.81	1.04	1.01	$1.61	1.02
29-29.9	1.87	1.88	1.81	1.83	1.90	1.74	1.69	1.09	1.73	1.83	1.01	1.06	1.06	1.83	1.06	1.03	1.63	1.04
Below 30	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
30-30.9	1.90	1.90	1.83	1.85	1.92	1.76	1.71	1.11	1.75	1.85	1.03	1.08	1.08	1.85	1.08	1.05	1.65	1.06
31-31.9	1.92	1.92	1.85	1.87	1.94	1.78	1.73	1.13	1.77	1.87	1.05	1.10	1.10	1.87	1.10	1.07	1.67	1.08
32-32.9	1.94	1.94	1.87	1.89	1.96	1.80	1.75	1.15	1.79	1.89	1.07	1.12	1.12	1.89	1.12	1.09	1.69	1.10
33-33.9	1.96	1.96	1.89	1.91	1.98	1.82	1.77	1.17	1.81	1.91	1.09	1.14	1.14	1.91	1.14	1.11	1.71	1.12
34-34.9	1.98	1.98	1.91	1.93	1.00	1.84	1.79	1.19	1.83	1.93	1.11	1.16	1.16	1.93	1.16	1.13	1.73	1.14
Below 35	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.00	1.00	1.93	1.95	1.02	1.86	1.81	1.21	1.85	1.95	1.13	1.18	1.18	1.95	1.18	....	1.75	....
36-36.9	1.02	1.02	1.95	1.97	1.04	1.88	1.83	1.23	1.87	1.97	1.15	1.20	1.20	1.97	1.20	....	1.77	....
37-37.9	1.04	1.04	1.97	1.99	1.06	1.90	1.85	1.25	1.89	1.99	1.17	1.22	1.22	1.99	1.22	....	1.79	....
38-38.9	1.06	1.06	1.99	1.01	1.08	1.92	1.87	1.27	1.91	1.01	1.19	1.24	1.24	1.01	1.24	....	1.81	....
39-39.9	1.08	1.08	1.01	1.03	1.10	1.94	1.89	1.29	1.93	1.03	1.21	1.26	1.26	1.03	1.26	....	1.83	....
40 and over	1.10	1.10	1.03	1.05	1.12	1.96	1.91	1.31	1.95	1.05	1.23	1.28	1.28	1.05	1.28	....	1.85	....

Crude oil prices in the Mid-Continent and Gulf Coast are up where they were previous to the 20-cent reduction posted by Sinclair Prairie Oil Marketing Co. on August 10 in all fields in which it buys, which was followed on August 11 by the sweeping price cuts of Humble Oil & Refining Co. in Texas and New Mexico and then by Standard Oil Co. of Louisiana in Louisiana and Arkansas.

Some companies met the new prices posted by Sinclair, Humble and Louisiana Standard, but noticeable among those that did not were Gulf Refining Co., Texas Co., Carter Oil Co., Pure Oil Co. and Magnolia Petroleum Co. which made no changes. Some of those that met cuts in one state did not do so in another. Notably, in Oklahoma and Kansas, Standard Oil Co. of Indiana, Shell Oil Co., Inc., Continental Oil Co. went along with Carter, Magnolia, Texas, Pure and Gulf in standing pat on their old price schedules of last fall.

Humble Oil & Refining Co. restored its prices on August 29, after the Texas Railroad Commission shut down the fields of that state, and made the restoration retroactive to August 11. Therefore there has been no break in the Humble's prices since last December.

In meeting Humble's prices, Shell Oil Co., Inc., cut prices in fields in which it purchases in Texas on August 11, and restored them effective August 29, but adopted a gravity scale in the East Texas field ranging from below 34 gravity at 98 cents to a top of $1.10 for 39 gravity and over. Atlantic Refining Co., which met Humble prices in Southwest Texas on August 11, rescinded its action and restored its prices retroactive to August 11. Republic Pipe Line Co., buying in Saxet, Plymouth, East White Point, and Midway, and at Heyser and in Duval County, met Humble prices on August 11 and when it restored its old schedules made them all retroactive to August 11. Prior to August 11 the Republic company's prices in Heyser and Duval County ended at 35° and above, while the Humble carried them up to 40 and above. When the cut was made Republic adopted Humble's gravity scale, and when it restored its prices retained the 40-gravity schedule and prices of the Humble, which represents an increase over Republic's original postings for oil in the higher brackets. Barnsdall Pipe Line Co. effective August 28 posted a gravity scale in Southwest Texas pools in which it purchases, beginning with 20-20.9 gravity 77 cents, adding 2 cents for each degree upward to 27-27.9 gravity and then adding 3 cents for each degree up to a top of 40 gravity and above at $1.25. Companies restoring prices in East Texas following the Humble Oil & Refining Co. included De Soto Crude Oil Purchasing Co., Atlantic Refining Co., Tide Water Associated Oil Co., East Texas Refining Co. and Premier Oil Refining Co., all of which made their restored prices retroactive to August 11; Stanolind Oil Purchasing Co. effective August 12; Toronto Pipe Line Co. and Shell Oil Co., Inc., effective August 29; Bell General Pipe Line Co., Arkansas Fuel Oil Co. and Cities Service Oil Co. effective August 30. Shell and Cities Service went on a gravity basis in East Texas, starting at below 34°, 98 cents, with 2 cents added for each degree up to a top of $1.10 for 39 gravity and over. Sinclair Prairie's East Texas price starts at below 33 at 96 cents, with a top of $1.10 for 39° and over.

In Louisiana and Arkansas none of the companies made its prices retroactive to the day it made its cut. Effective August 30 Standard Oil Co. of Louisiana went back to its old price schedules, as did Arkansas Fuel Oil Co., Lion Oil Refining Co., H. H. Cross Co., McMillan, and Placid Oil Co. Effective August 29 Root Petroleum Co. and Stanolind Oil & Gas Co. readopted their old prices. De Soto Crude Oil Purchasing Co. restored its prices in East Texas retroactive to August 11, and adopted the gravity schedule in that field with a top price of $1.10 for 40 gravity and higher, effective September 1.

In Oklahoma and Kansas where Sinclair Prairie led off with its 20-cent price cuts on August 10 that company restored its old prices effective August 31. Cities Service Oil Co., Champlain Refining Co. and Skelly Oil Co. also cut 20 cents per barrel but restored their prices, Cities Service Co. on August 30, Champlain Refining Co. on August 30, and Skelly Oil Co. on September 1.

Column 1—Magnolia Petroleum Co., effective October 12, 1938. Shell Petroleum Corp., effective October 22, 1938. Shell Oil Co., Inc., April 1, 1939.

Column 2—Standard Oil Co. of Indiana, effective October 11, 1938, below 29 degrees 86 cents, with 2-cent spread to 40 and over at $1.10. Same company on October 17 revised the schedule to start at below 21 degrees at 70 cents, with 2-cent spread to 40 and over at $1.10. Sinclair Prairie Oil Marketing Co. schedule started at below 25 degrees, 60 cents; 25-25.9, 80 cents with 2-cent differential up to $1.10 for 40 degrees and over, effective October 11, but was revised on October 14, starting at 21 gravity, 60 cents, with a 3-cent spread to 30-30.9 degrees at 90 cents, then a 2-cent spread to 40 degrees and over at $1.10. Effective February 16, 1939, Sinclair Prairie posted 25-25.9 degrees at 58 cents, with 5 cents added for each degree up to and including 29-29.9 degrees at 78 cents; then 4 cents added for each degree up to and including 32-32.9 at 90 cents; 33-33.9 was posted at 96 cents, with 2 cents added for each degree up to 40 and over at $1.10. Gulf Oil Corp. schedule starts at below 25 degrees, 78 cents, with 2-cent differential up to $1.10 for 40 degrees and over, effective October 13. Shell Oil Co. schedule same as that of Gulf, effective October 13 to October 21 (see Column 1). The Texas Co. schedule starts at 28-28.9 degrees, 86 cents, with top of $1.10 for 40 degrees and over. Pure Oil Co. same as Standard of Indiana's October 11 schedule, effective October 14.

Gulf Oil Corp. schedule starts at below 25 degrees, 78 cents, with 2-cent differential up to $1.10 for 40 degrees and over, effective October 13. Shell Petroleum Corp. schedule same as that of Gulf, effective October 13 to October 21 (see Column 1). The Texas Co. schedule starts at 28-28.9 degrees, 86 cents, with top of $1.10 for 40 degrees and over. Pure Oil Co. same as Standard of Indiana's October 11 schedule, effective October 14.

Column 3—Humble Oil & Refining Co. in Central Texas, effective December 3, 1938. Magnolia Petroleum Co. schedule in North and Central Texas, same as the Humble, excepting that it starts at below 29 degrees at 79 cents, effective December 3, 1938. The Texas Co. schedule in North and Central Texas, same as Magnolia's, but effective October 12. Gulf Refining Co. same as the Texas Co., effective October 13. Sinclair Prairie Oil Marketing Co., in Mexia and North Central Texas, below 29 degrees, 76 cents, with 2 cents added for each degree up to and including 40 and over at $1, effective October 11. Stanolind Oil Purchasing Co. schedule started at below 29 degrees at 79 cents with a top of $1.03 for 40 degrees and over, effective October 11, but was revised on October 17 to read below 21 degrees, 60 cents with a 2-cent spread to 40 degrees and over at $1.

Column 4—Standard Oil Co. of Louisiana, effective October 5, 1938. Met by Gulf Refining Co. October 13; met by Texas Co. October 12.

Column 5—Humble Oil & Refining Co., October 11, 1938.

Column 6—Humble Oil & Refining Co., effective December 3, 1938. Sinclair Prairie Oil Marketing Co., October

11, 1938. Texas Co. quotes "Panhandle sweet crude," beginning with 34-34.9 degrees, at 84 cents, with 2-cent spread to 40 and over at 96 cents, and "Panhandle sour crude," 79 cents for 34-34.9 degrees, with a top of 91 cents for 40 degrees and over, effective October 12. Magnolia Petroleum Co. met Humble prices throughout, effective December 3. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents with a 2-cent spread, and a top price of 96 cents for 40 degrees and above, and "Panhandle sour crude" below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above effective October 13. Phillips Petroleum Co. schedule for sweet crude in the Gray, Carson and Hutchinson counties, starts at below 29 degrees. 72 cents, with a spread of 2 cents up to 96 cents for 40 degrees and over, effective February 7, 1939.

Column 7—Humble Oil & Refining Co., effective December 3, 1938. Sinclair Prairie Oil Marketing Co., October 11, 1938. Texas Co. quotes "Panhandle sweet crude" at 34-34.9 degrees, 84 cents, with a top of 96 cents for 40 gravity, and "Panhandle sour crude" at 34-34.9 degrees, 79 cents, with a top of 91 cents for 40 degrees and over, effective October 12. Gulf Refining Co. quotes "Panhandle sweet crude" at below 29 degrees, 72 cents, with a top of 96 cents for 40 degrees and over and "Panhandle sour crude" at below 29 degrees, 67 cents, with a top of 91 cents for 40 degrees and above, effective October 13. Phillips Petroleum Co. schedule for sour crude in Carson, Moore and Hutchinson counties, starts at below 29 degrees at 67 cents, with a spread of 2 cents up to 91 cents for 40 degrees and over, effective February 7, 1939.

Column 8—Humble Oil & Refining Co., effective October 11, 1938. Magnolia Petroleum Co., in Tomball, effective October 12.

Column 9—Humble Oil & Refining Co., effective October 11, 1938. The Texas Co. schedule starts below 26 degrees, 65 cents, and ends at 36 degrees and over at 87 cents, effective October 12. Gulf Refining Co. starts at below 26 degrees at 65 cents and ends at 40 degrees and over at 95 cents, effective October 13. Magnolia Petroleum Co. schedule starts below 25 degrees, 63 cents, and ends at 40 degrees and above at 95 cents, effective October 12. Sinclair Prairie Oil Marketing Co. schedule same as that of Magnolia, effective October 11 but revised on March 24, 1939, to stop at 36 degrees and over at 87 cents. Stanolind Oil Purchasing Co. schedule same as that of Humble, effective October 11. Stanolind Oil & Gas Co. (Winkler County) starts at below 26 degrees, 65 cents, with a 2-cent spread, and a top of 95 cents for 40 degrees and above, effective October 11.

Column 10—Continental Oil Co., effective October 11, 1938.

Column 11—Gulf Refining Co. in Anahuac, effective October 12, 1938. By Humble Oil & Refining Co. in Anahuac, Dickinson and Mirando, effective December 3, 1938; by the Texas Co. in Mirando and Duval but starting at below 21 degrees, 77 cents, with a 2-cent spread up to and including 28 and above at 99 cents, effective October 12, 1938.

Column 12—Humble Oil & Refining Co., effective December 3, 1938. The Texas Co. starting at below 21 degrees at 81 cents and stopping at 28 and above at $1.04, October 13, 1938.

Column 13—Posted by Humble Oil & Refining Co., effective October 11, 1938. Pure Oil Co., October 13, starting at below 20 degrees, 79 cents. The Texas Co. schedule in coastal Texas and Louisiana, starts at below 21 degrees, 82 cents, with 3-cent differential up to 26-26.9 at $1 and then a 2-cent differential to top of $1.16 for 34 degrees and above, effective October 12. Gulf Refining Co. schedule on Louisiana Gulf Coast starts at below 18 gravity, 76 cents, with 2-cent spread to 20-20.9 degrees at 82 cents, then a 3-cent spread to 26-26.9 degrees at $1, then 2-cent spread to a top of $1.16 for 34 degrees and over, effective October 12. Sun Oil Co. met Humble prices October 13, stopping at 34 degrees and over at $1.16.

Column 14—Magnolia Petroleum Co., effective October 12, 1938.

Column 15—Standard Oil & Gas Co. in West Beaumont, effective October 11, 1938, and Magnolia Petroleum Co. in Beaumont field, effective October 12.

Column 16—Magnolia Petroleum Co., effective October 12, 1938.

Column 17—Continental Oil Co., effective October 11, 1938.

Column 18—Shell Petroleum Corp., October 11, 1938. Shell Oil Co., Inc., April 1, 1939.

North Louisiana and Arkansas

Shreveport, La. (July 17, 1939) $0.95
Smackover, Ark. (Oct. 5, 1938)* ..... .73
Buckner, Magnolia, and Village, Ark. (Oct. 5, 1938)* ..... See note below
Schuler, Jones sand ..... See note below
Tullos and Urania $0.89
Cotton Valley, La. (distillate) (Dec. 23, 1938)* 1.20
Lisbon, La. (Apr. 29, 1939) ..... See note below

*Smackover posted by Standard Oil Co. of Louisiana, Oct. 5, 1938; by Magnolia Petroleum Co., Oct. 12; by Gulf Refining Co., Oct. 13; McMillan Refining Co. and Cross Refining Co. met price. Tullos and Urania posted by Hunt Oil Co. and Arkansas Fuel Oil Co.

Schuler Jones sand schedule starts at below 25°, 66 cents, with 2-cent spread to 40° and over at 98 cents; by Lion Oil Refining Co. on Oct. 5, 1938; Schuler light Morgan sand crude takes North Louisiana gravity scale along with El Dorado and Champagnolle; by Lion Oil Refining Co., Oct. 5; Buckner, Magnolia, and Village schedules posted by Standard Oil Co. of Louisiana and Lion Oil Refining Co. on Oct. 5; quote same prices as for Schuler Jones sand crude. Shreveport by Caddo Crude Oil Purchasing Co. and Atlas Oil Corp. Lisbon: Caddo Crude Oil Purchasing Co., posts below 34°, 73 cents; 34°-34.9°, 75 cents; 35° and above, 77 cents. Effective May 1, 1939, Gulf Refining Co. posted a flat price of 77 cents in Lisbon.

Rocky Mountain States

Dry Creek, Wyo. (Oct. 11, 1938)* ... $0.92
Elk Basin, Wyo (Oct. 11, 1938)*† ... $0.90
Grass Creek, light, Wyo. (Oct. 11 1938)*† ..... .90
Grass Creek, heavy (Oct. 11, 1938)† ..... .40
Lance Creek, Wyo. (Oct. 11, 1938)* ..... .77
Rock Creek, Wyo. (Oct. 11, 1938)* .. 1.00
Iles, light, Colo. (Oct. 11, 1938)† .... .98
Iles, heavy, Colo. (Oct. 11, 1938)† .... .92
Dutton Creek, Wyo. (Oct. 11, 1938)† ..... See note below
Frannie, light, Wyo. (Oct. 11, 1938)† $0.55
Frannie, heavy, Wyo. (Oct. 11, 1938)† ..... .42
Hamilton dome, Wyo. (Oct. 11, 1938)† ..... .35
Midway, Wyo. (Oct. 11, 1938)† ..... See note below
Salt Creek Tensleep crude, Wyo. (Oct. 11, 1938)† $0.646
Salt Creek (Oct. 11, 1938) See note below
Canon City, Colo. (Oct. 11, 1938)‡ .. $0.90
Florence, Colo. (Oct. 11, 1938)‡ .... .90
Cat Creek, Mont. (Oct. 11, 1938)‡ ... 1.10
Big Muddy, Wyo. (Oct. 11, 1938)‡ .... .98
Lance Creek, Wyo. (Oct. 11, 1938)‡ . .77
Lea County, New Mexico ..... See West Texas gravity schedule‡
Artesia, Jackson and Maljamar ..... See gravity table‡
Fort Collins and Wellington, Colo. ..... See gravity table‡
Eddy County, New Mexico (Oct. 11, 1938)§ $0.77

*Ohio Oil Co. †Stanolind Oil & Gas Co. ‡Continental Oil Co. §Sinclair Prairie Oil Marketing Co.

Dutton Creek and Salt Creek Tensleep crudes start at below 29°, 86 cents, 2 cents spread up to 40° and over at $1.10. Salt Creek crude, excepting Tensleep, takes Standard Oil Co. of Indiana's Oklahoma-Kansas prices. Stanolind Oil & Gas Co. effective Oct. 11, discontinued posting prices in Greybull-Torchlight, Wyoming and Hogback and Hospah, New Mexico.

Eastern States

SOUTH PENN OIL CO.
(Effective Mar. 6, 1939)

Pennsylvania Grade oil in National Transit lines (Bradford field) $2.00
Pennsylvania Grade oil in Southwest Pennsylvania lines 1.65
Pennsylvania Grade oil in Eureka Pipe Line lines 1.50
Pennsylvania Grade oil in Buckeye Pipe Line lines 1.55
Corning grade oil in Buckeye Pipe Line Co. line (Jan. 24) 1.02

TIDE WATER ASSOCIATED OIL CO. and NEW YORK TRANSIT CO
(Effective Mar. 6, 1939)

Bradford, Pa. $2.00
Allengany, N. Y. 2.00

PENNZOIL CO.
(Effective Mar. 6, 1939)

Group A $1.95
Group B 1.94
Group C 1.98
Group D 1.92
Group E 1.90

PURE OIL CO.
(Effective Mar. 6, 1939)

West Virginia $1.50

Canada

ONTARIO
(Oct. 25, 1938, by Imperial Oil, Ltd.)

Petrolia $1.90
Oil Springs $1.97

TURNER VALLEY
(Jan. 5, 1938, by Imperial Oil, Ltd.)

Clear naphtha and discolored naphtha, 65° and higher $2.14
Discolored naphtha and crude oil, 40°-40.9° 1.14
Increasing 2 cents for each degree gravity with top price for 64°-64.9° 1.62
These prices f.o.b. producers' field tankage.

Canadian Fields

(Continued from Page 95)

ty. A test on the Arthur Freer farm, a mile west of Kerrwood, started at 100 bbl. a day. Across the road three producers have been drilled, the third getting production at 300 ft., starting around 100 bbl. All four wells are on leases held by Beattie Brothers of Glencoe. A test on the John Freer farm pumped around 20 bbl. a day, with considerable gas. The shallow field, mostly in Warwick Township, east of Watford, has been making around 1,250 bbl. a week, new completions as the field is extended offsetting the decline in the older wells. The production apparently comes from fissures in the lime rather than a true sand, but operators believe that eventually drilling will tap large production.

Tank-Wagon Changes

(Continued from Page 112)

gasoline 0.2 of a cent; Syracuse, N. Y., raised tank-car gasoline 0.2 and tank wagon 0.9 of a cent; Boston, Mass., raised tank-car gasoline 0.3 of a cent; Portland, Me., raised tank-car gasoline 0.3 of a cent and tank wagon 0.3 of a cent per gallon. Manchester, N. H., raised tank-car gasoline 0.3 of a cent and tank wagon 1.3 cents per gallon; Burlington, Vt., raised tank-car gasoline 0.4 of a cent; Springfield, Mass., raised tank-car gasoline 0.3 of a cent; Worcester, Mass., raised tank-car gasoline 0.4 of a cent and tank-wagon gasoline 0.5 of a cent; Hartford, Conn., raised tank-car gasoline 0.3 of a cent and tank-wagon 0.3 of a cent; New Haven, Conn., raised tank car 0.3 of a cent and tank wagon 0.76 of a cent; and in Providence, R. I., raised tank car 0.3 of a cent and tank wagon 0.5 of a cent.

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Ellwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Midway-Sunset Lakeview Area	Lost Hills	Coalinga	Santa Paula*	Kettleman Hills	Wheeler Ridge	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	...	...	...	$.80	$.76	$.76	$.77	$.78	...	...	$.70	$.70	$.70	...	...	$.70	...
15-15.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	...
16-16.9	.80	.79	.74	.78	.79	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	...	...	...	.80	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	...	...	...	.82	.76	.76	.77	.78	...	...	.70	.70	.70	...	...	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	...	...	...	.85	.76	.78	.77	.78	...	$.70	.74	.74	.71	$.70	...	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	...	...	...	.88	.78	.82	.77	.80	...	.70	.78	.78	.72	.70	...	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	...	...	...	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	...	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	...	...	...	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	...	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	...	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	...	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	...	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	...	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	...	1.02	.95	...	.89	.99	.86	.88	1.01	.98	.90	.88	...	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	...	1.05	.98	...	.92	1.03	.90	.91	1.06	1.02	...	...	...	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	...	1.10	1.03	.88	...	...	1.02	...	.96	1.06	.95	.95	1.10	1.06	...	...	...	.95	...
28-28.9	1.14	1.10	.90	1.14	1.15	...	1.14	1.07	.90	...	...	1.06	...	.99	1.10	.99	.99	1.15	1.10	...	...	...	.97	...
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	...	...	1.09	...	1.03	1.14	1.03	1.02	1.20	1.14	...	...	...	.99	...
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	...	...	...	1.07	1.17	1.08	1.06	1.25	1.18	...	...	...	1.01	...
31-31.9	...	...	...	...	1.24	Pipe	1.24	1.22	.97	Ship	...	...	...	1.11	1.21	1.12	1.09	1.29	...	...	...	...	...	...
32-32.9	...	...	...	...	1.27	Line	1.27	1.27	1.00	...	...	...	...	1.14	1.25	1.16	1.13	1.34	...	...	...	...	...	...
33-33.9	...	...	...	...	...	...	...	1.32	...	1.28	...	...	...	1.18	1.28	1.20	1.17	1.38	...	...	...	$1.19	...	...
34-34.9	...	...	...	...	...	...	...	1.37	...	1.32	...	...	...	1.22	1.32	1.25	1.20	...	...	...	...	1.23	...	...
35-35.9	...	...	...	...	...	...	...	1.42	...	1.35	...	...	...	1.25	...	1.29	...	...	...	...	...	1.27	...	...
36-36.9	...	...	...	...	...	...	...	1.46	...	1.39	...	...	...	1.29	...	1.33	...	...	...	...	...	1.31	...	...
37-37.9	...	...	...	...	...	...	...	1.51	...	1.43	...	...	...	1.32	...	1.37	...	...	...	...	...	1.35	...	...
38-38.9	...	...	...	...	...	...	...	1.56	...	...	...	...	...	1.36	...	1.42	...	...	...	...	...	1.39	...	...
39-39.9	...	...	...	...	...	...	...	1.61	...	...	...	...	...	1.40	...	...	...	...	...	...	...	1.43	...	...
40-40.9	...	...	...	...	...	...	...	1.66	...	...	...	...	...	1.43	...	...	...	...	...	...	...	...	...	...

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over. By Standard Oil Co., effective October 15: El Segundo, 14 to 18.9 degrees, 80 cents; 19-19.9, 82 cents; 20-20.9. 85 cents; 21-21.9, 88 cents; 22-22.9, 92 cents; 23-23.9, 95 cents, 24-24.9, 99 cents; 25-25.9, $1.03 26-26.9, $1.06; 27-27.9, $1.10; 28-28.9, $1.14; 29-29.9, $1.17; 30-30.9, $1.21. Wilmington, 14 to 16.9, 75 cents; 17-17.9, 77 cents; 18-18.9, 79 cents; from 19 degrees upward, prices same as Signal Hill.

Montebello—Effective August 11 Standard Oil Co. of California increased prices in the Montebello field ranging from 1 cent per barrel for 26-26.9 gravity to 8 cents for 40 gravity, in addition to which the price schedule has been extended to provide new prices for gravities of 41 degrees and above. The new schedule ranges from 77 cents per barrel for 14-14.9 degrees to $1.75 for 46 gravity and above.

New or Improved Equipment

Formations Logged as Drilled With New Recording Device

An automatic rate-of-penetration recorder for use on drilling wells has been announced by Martin-Decker Corp., Long Beach, Calif. The rate-of-penetration re-

corder solves the problem of logging formations as they are drilled. It eliminates the inaccuracies of ordinary manual computing methods and provides geologists, engineers, drillers, and drilling departments with a simple, positive way to obtain time-drilling information automatically and continuously.

Completely automatic in operation, the instrument has three simple parts—a water reservoir attached to the swivel, a small-diameter rubber hose connecting the reservoir to the recorder, and a special low-range pressure recorder using charts graduated in "feet of penetration." The system is filled with clear water or an antifreeze solution for cold weather. In operation the recorder charts the rate of change in hydrostatic pressure from the reservoir as the kelly lowers while drilling. It instantly records formations breaks as they occur and charts a clear, continuous record of bit-pentration rate.

E. M. Smith Becomes General Manager of Globe Oil Tools

Announcement to the effect that E. M. Smith, founder and former president of Emsco Derrick & Equipment Co., will continue to be active in the manufacture and distribution of oil-well tools in the capacity of general manager of Globe Oil Tools Co., Los Nietos, Calif., will be news of special interest to his legion of friends throughout the world petroleum industry.

"E. M." began his career as a salesman in the California oil fields back in 1907. During the ensuing thirty-odd years of his activities he has organized more than a score of companies which have gained world prominence through his aggressive leadership. He and his associates in these enterprises have been largely responsible for the era of greatest progress in oil-well drilling procedure in all petroleum history through the development of new and radically changed designs of the major items of oil-field equipment and particularly through the adoption of steel in place of wood as the basic material for such equipment.

Globe Oil Tools Co. is one of the companies organized by "E.M." during that memorable period, being a consolidation of three of the outstanding manufacturers of drilling, coring, and reaming tools. While these products were the best of their kind at that time, the company immediately set about improving designs, materials, etc., with the result that Globe tools became widely used throughout the oil fields of the world and always have been universally recognized as the leaders among these types of equipment. Notable among the present line of Globe tools is the Globe Type H rock bit, manufactured with four different cutter assemblies for digging a wide range of formations; the Globe box and pin-type drilling bits, produced in five drag types and one fluid-action type for use in formations that can be cut with the circulation fluid; and, of course, the original but greatly improved W-K-W-type bits that are used wherever oil wells are drilled. In addition to these, several new items have been developed during the past few years, which will be announced in the near future and will prove of great interest to drillers in all parts of the world. All except the very latest of these products are illustrated and described in the company's Catalog 39.

For many years "E. M." has been a world traveler, having personally visited practically every active oil field in the world at one time or another, and undoubtedly enjoys a wider acquaintance among oil workers than most any one man in the industry. Although his executive duties with the Globe company will require his presence at the company's headquarters a good portion of the time, Mr. Smith will continue, as in the past, to spend as much time as possible out in the field where actual operations are in progress. The company now has branches in Houston, Oklahoma City, and Casper, while all export business is handled through the New York office at 30 Rockefeller Plaza. Coincidentally with the announcement of his active participation in the affairs of the Globe company, "E. M." states that the company shortly will launch an aggressive campaign of distribution that will make Globe tools quickly available to even the remotest field or well.

Here and There With Men Who Manufacture Equipment

J. H. Howard, chief engineer for McEvoy Co., attended the British-American Engineering Congress of the American Society of Mechanical Engineers in New York, September 4 to 8. He is now touring New York and eastern Canada and will return to Houston, Tex., September 18.

Bruce Barkis and Kenneth A. Wright have organized B and W, Inc., to manufacture and distribute oil-well specialties, featuring mud removal and sand control. The headquarters of the new company are at 3545 Cedar Avenue, Long Beach, Calif.

E. M. (Mike) Cloran, formerly in the engineering department of Pittsburgh Equitable Meter Co. and Merco Nordstrom Valve Co., Pittsburgh, Pa., has been transferred to the company's Los Angeles office. He will handle sales engineering duties, chiefly contacting gas and petroleum departments of southern California corporations.

C. T. Price has been made vice president and general manager of Compressed Industrial Gases, Inc., Chicago. He formerly was vice president in charge of sales. F. M. Wyman has been made general sales manager and R. G. Wilson assistant general sales manager. The medicinal gas sales division will be under the direction of P. G. Wesley. A. H. Steinbrecher continues as vice president and is assistant general manager in charge of production. H. B. Pearson, Jr., has been advanced to secretary and treasurer. The new general accountant is G. R. Kall.

Merla Tool Corp. Formed

Merla Tool Co., Dallas, Tex., a copartnership has been incorporated as Merla Tool Corp. The new corporation acquires all assets of the copartnership and assumes all liabilities. D. W. Henke is president and general manager; C. S. Crickmer, vice president in charge of engineering; Roy A. Lamb, vice president in charge of sales; Hans C. Glitsch, vice president in charge of materials and inspection; Fritz W. Glitsch, Jr., vice president in charge of manufacturing; V. A. Kagay, secretary and treasurer; George O. Wilson, general counsel. All the officers as well as other personnel have had many years of experience in the oil industry.

New-Style Recording Devices Are Put on Market by Brown

A new and improved line of temperature and pressure recorders, indicators, and controllers has been placed on the market by Brown Instrument Co., Phil-

adelphia, Pa. These instruments include thermometers, indicating and recording type, for temperatures from —40° F. up to 1,200° F.; and indicating or recording pressure and vacuum gages for ranges from 6 lb. of water up to 2,500 lb. per sq. in. and on vacuum ranges of 10 in. of Hg and over. All types are offered in one, two, or three-pen models.

The powerful, flat, spiral actuating elements have ample pen torque without sacrificing speed of response. Especially heat-treated to insure permanent calibration, they have exceptional overrange capacity. A special safety link between actuating element and pen provides an overload safeguard protecting the mechanism from damage if the pen is moved in either direction manually.

The chart is firmly secured to the driving mechanism by a tapered stud and a tapered chart-positioning stud, eliminating chart knob and chain. Charts, when renewed, are automatically in time, as the tapered position stud is in effect the hour hand of the electric clock. If current failure makes it necessary to reset the chart to correct the time line, a friction clutch permits manual rotation.

General Electric Promotes Two

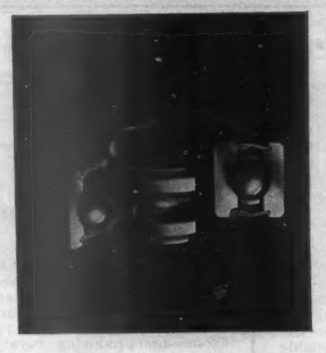
G. R. Prout has been appointed manager of sales of industrial control in the General Electric Co.'s industrial department. W. T. Darcy has been appointed manager of sales of renewal parts. Mr. Prout is a graduate of Massachusetts Institute of Technology. He entered General Electric's small motor department at Lynn, Mass., in 1923 and the next year was transferred to the southwestern district, where he served as a motor and industrial control specialist and as specialist in electric equipment for the petroleum industry. In February 1939, he was appointed acting manager of the industrial department in the southwestern district, a position he held until his latest advancement. His headquarters will be in Schenectady, N. Y.

G. R. PROUT

Mr. Darcy joined General Electric in 1925, entering the testing department. Since last year he has served as assistant to W. C. Yates in charge of renewal parts sales.

SKF Industries Develops New Line of Sealed Ball Bearings

A line of sealed ball bearings along new and simple principles has been developed by SKF Industries, Inc., Philadelphia, Pa. The seal used can be applied to



bearings having a standard single-row S.A.E. dimension of bore, inner- and outer-race width, which up to the present time has not been possible except through use of small balls and, consequently, loss of bearing capacity.

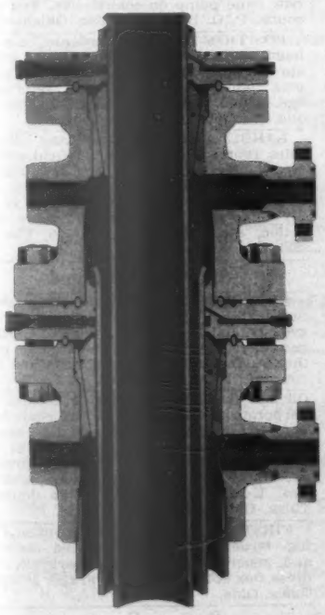
This development has been effected by adopting modern air-cleaner principles, sealing against dirt by the felt fiber contact on the polished surfaces of the inner race, and by utilization of the natural tendency of deflected felt to resume its original flat shape.

Tests are said to have shown that the new seal retains the bearing lubricant and excludes dust or dirt from the bearing itself, yet the sealing action is so light that the friction drag has been greatly reduced.

The bearing is therefore suitable over a great range of speed. Its designation is 6200 RS, and it is available for shafts up to approximately 1-in. in diameter.

Pressure Tightness Insured by New Cameron Casing Head

A new casing head, featuring an ingenious provision for visually testing the efficiency of each construction weld with hydraulic pressure, thus insuring pressure-tightness before installing the casing spool or christmas tree, has been announced by Cameron Iron Works, Inc., Houston, Tex.



The operation of this Type M Test-Weld casing head, is as follows: After the pipe is suspended and cut off above the slips, the Type M welding flange is stripped over and bolted down to the casing head or spool with six studs. Asbestos plastic packing is inserted through a port in the welding flange and, by means of a ball-check Allen set screw, is forced evenly around a molded asbestos ring recessed into the bore of the welding flange. Plastic packing forces the molded asbestos ring into pressure-tight contact with the pipe. The construction now is weld applied, and when the weld has cooled, hydraulic pressure is applied through a port on the opposite side of the flange which connects with a small, half-round groove between the molded asbestos seal ring and the construction weld. Any defects in the weld may be detected and repaired before installing the casing-head spool or christmas tree. After testing, hydraulic pressure is relieved and the pipe plug is made up in the test port. The molded asbestos ring provides a secondary seal of the annular space. A cross-section view of the head, illustrating details of construction, is presented herewith.

Trade Literature

NATIONAL RADIATOR CORP., Johnstown, Pa.—Catalog CP-13, on mud-leg type Oil-Rator.

INTERNATIONAL NICKEL CO., INC., 67 Wall Street, New York.—August number Nickel Steel Topics.

MEEHANITE RESEARCH INSTITUTE OF AMERICA, INC., 311 Ross Street, Pittsburgh, Pa.—"Meehanite, the Metal for Machine-Tool Castings," 16-page booklet.

D. W. HAERING & CO., INC., 2308 South Winchester Avenue, Chicago.—August number of H-O-H Lighthouse.

JOHNSON BRONZE CO., New Castle, Pa.—New size and weight listing of Universal bronze bars.

GLOBE OIL TOOLS CO., Los Nietos, Calif.—Bulletins on Globe basket bit, Globe safety finger, and Globe wire-line coring equipment.

PEERLESS PUMP DIVISION, FOOD MACHINERY CORP., 301 West Avenue 26, Los Angeles, Calif.—Bulletin on improved water-lubricated pump.

BUCKEYE TRACTION DITCHER CO., Findlay, Ohio.—Booklet, 24 pages, on Buckeye Clipper convertible excavator.

HARNISCHFEGER CORP., 4400 West National Avenue, Milwaukee, Wis.—Bulletin W-26, "The 200-Ampere Multi-Arc Welding Service."

GRISCOM-RUSSELL CO., 285 Madison Avenue, New York.—Bulletin 1640, on storage-tank oil heater.

UNITED STATES RUBBER CO., 1790 Broadway, New York.—Pamphlet on types of hose available for fuel oil, gasoline, propane, and butane gas and for tank-truck service.

LINK-BELT CO., 2045 West Hunting Park Avenue, Philadelphia, Pa.—Book No. 1574, 40 pages, on Link-Belt P.I.V. gear.

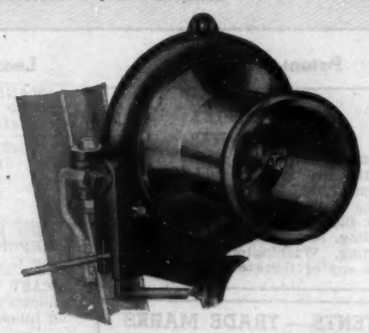
CHAPLIN-FULTON MANUFACTURING CO., 28 Penn Avenue, Pittsburgh, Pa.—Catalog 40, on Fulton pressure regulators.

FAIRBANKS CO., Boston, New York, Pittsburgh.—Folder describing new line of Fairbanks bronze gate valves.

GENERAL ELECTRIC CO., Schenectady, N. Y.—Booklet, 16 pages (GEA-3042A), on thyratron-controlled G-E automatic arc-welding equipment; also bulletin on low-current arc welders.

Detachable Spool Is Feature of Latest Simplomatic Cathead

An improvement of its Simplomatic cathead is announced by the American Iron & Machine Works Co., of Oklahoma City and Houston.



The detachable spool may be removed where the width of the road or other conditions do not give clearance on the highway. Instead of having to remove the entire cathead from the draw works, it is a simple matter to remove the spool, which is made a part of the working mechanism of the cathead by a series of cap screws easily removed and replaced.

Due to its improved engaging mechanism, the Simplomatic cathead is equally adaptable to either fast or slow draw works.

Small Westinghouse Linestarter

A small across-the-line starter for ratings up to 2 hp., 220, 440, and 550 volts, 2 and 3-phase and equivalent ratings on single-phase, is announced by Westinghouse Electric & Manufacturing Co. These starters are used for across-the-line starting of squirrel-cage induction motors, and as primary switches for wound-rotor induction motors. Typical applications include machine tools, conveyors, and pumps. The starters are available as plain across-the-line starters, or in combination with motor-circuit switches and Nofuze circuit-breakers in standard enclosures.

Interesting Applications Shown

The August issue of Industrial News, published by Gates Rubber Co., contains illustrations of interesting applications of Gates Vulco rope drives.

PRESSURE VESSEL IS OFF ON LONG JOURNEY TO FRANCE

"Hoist away!" signaled the shop foreman, and this 74-ft. evaporator bubble tower was swung to waiting railroad cars to begin its long journey to Gonfreville, France, on the lower Seine. Carried by rail from the Milwaukee, Wis., plant of the A. O. Smith Corp. to New York City, the huge refining tower will there be transshipped by ocean freighter to La Havre, then on to Gonfreville. More than 10 ft. in diameter at its widest point, the vessel is built in accordance with A.P.I.-A.S.M.E. codes and is stress-relieved. It is Smith-lined throughout with chrome alloy sheets of uniform thickness to resist the attacks of corrosive crudes.

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LEASES—East Texas, La., South Ark. 20 acres up, dollar acre up.—Owners—Address Attorney, Box 1122, Little Rock, Ark.

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SACRAFICE 40-acre Oil Lease, Chaves County, for only $10.00, full price. Guarantee title. P. O. Box 191, Clovis, N. Mex.

BREWSTER COUNTY—TEXAS
DEALERS—Offer land in fee. All oil, gas, and other minerals included. TEN ACRE tracts and up very cheap. Write A. C. Smith, P. O. Box 200, San Antonio, Tex.

LEASES—Clinton County, Ky., on good structure, near shallow production, in the Wilcox and Sunnybrook area. New wells being started. Can furnish single or in blocks, or will drill one or more wells. T. Pettey, Jamestown, Kentucky.

NEW MEXICO
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Forty acres and multiples thereof. Buy in a New Hot Spot. Well down 275 ft. This is a real opportunity. Let's get together on it. Write for information. Other tracts as low as $6.00 per forty. List mailed upon request. 20 years in the business and not a complaint. I have a string of winners.
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Registered Dealer—State of Iowa
Box 166, Council Bluffs, Iowa.
Box 347, Santa Fe, New Mexico.

OWNER thousand acres of E. Okla. productive coal, oil, and gas land; $15 fee, half cash, bal. in trade; or $5 per A. lease or royalty. J. E. Cavanagh, Baker, Ore.

ANYONE interested in drilling test well on five thousand acre block, Carroll County, Missouri, Communicate with J. C. Lumsden, Wakenda, Missouri.

NOT leased—700 acre tract at Rising Sun on Wabash River, White Co. Ill. near prod. Offers considered. John M. Eckley, 319 Midland Sav. Bldg., Denver, Colo.

WANT 365 ac. drilled on shares. Solid block. About 20 mi. SW Independence, Kans. Near prod. J. N. Lawler, 601 S. Summit, Girard, Kansas.

MISSOURI Leases in blocks and scattered acreage. HARRAH and FRITH. Chillicothe, Missouri.

LEASES FOR SALE
50 A. offset to well now drilling at 800 feet, Lagrange Co., Ind. near Mich. line, $500.00 to first taker. Few other leases reasonable, get Trenton rock 2,225 ft. J. W. Hunt, Lagrange, Indiana.

Leases and Drilling Blocks

CRANE-Ward Co. line, Sec. 18 B 28, lease 79 ac., fee 240 A. Magnolia Lease. Write 415 Littlefield Bldg., Austin, Texas.

WANTED—To buy for cash 300 to 500 bbl. daily producing oil well in So. Illinois with 80 acres adjoining that can be leased for drilling. Box 215, Morris, Ill.

NEW MEXICO WEEKLY OIL SCOUT REPORT.—Send for sample copy. Roy G. Barton, Box 968, Hobbs, N. M.

EAST TEXAS Woodbine—Trinity sand wildcats starting shortly offer best chances big quick money, Leases—Royalties.
E. CROFT, PROCTOR, TEXAS.

FOR SALE or lease—All or part 200 acres, center Southern Illinois oil basin. Quarter mile from Kingwood Oil Co. drilling loc. H. E. Maulding, Dahlgren, Ill.

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Two wildcat blocks one each state. Drilling contract let on both blocks. Operations start 30 days. 10-acre tracts each block—$25.00 each, $50.00 for two tracts. Geological reports. Brokers write:
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Experienced Geologist—Oil, Gas, Water Locater.
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My Geological knowledge and locating was gained by many years of study and experience, application of a radio principle testing out at and around drilling wells and checking them as they were finished by my method of testing. I can give 95 to 100% accurate reports a showing light or heavy production whether it pinches out or chops off abruptly. I have a large oil pool located in this part of Mississippi, want someone to develop it on an equitable basis. This pool contains around fifteen thousand acres.

Leases and Drilling Blocks

FOR SALE
Oil and gas leases; and small production on leases with many proven locations to drill, located in the Kentucky shallow field, also blocks of leases in Clay County, Tennessee, near oil wells. W. P. HARLEY, Bowling Green, Kentucky.

WILL BUY mineral interests in West Texas and New Mexico. Submit full details. Box 585, Amarillo, Texas.

HAVE 13,600 acres under community lease free of rent to November 1, 1942. Production validates entire block. Pembina River anticline South Central Manitoba 100 air miles from Winnipeg. Drilled to 1904 ft. with evidence of gas including wet gas. Will grant acreage or Royalty for immediate drilling operations. Only reliable parties need inquire. P. O. Drawer 410, Morden, Manitoba, Canada.

HAVE some choice oil leases near three wells to start drilling soon. All Arbuckle Lime tests, on structure. Cheap. Geologist, Box 441, Winfield, Kans.

Mailing Lists

ROYALTY Lists. Oil Investor Lists. Stockholders Lists. By states. Oil Industry Mailing List Co., Tulsa Loan Bldg., Tulsa, Oklahoma.

Business Opportunities

FOR SALE—Fully integrated natural gas properties, situated in Kansas and Missouri, consisting of over 400 meters, 70 some odd miles pipe line, 15 or more producing gas wells, franchises on five towns, and leases on over 3,000 acres of gas producing acreage. Price: $60,000. Inquire of LOUIS C. CYR, 45 Melrose St., Lawrence, Massachusetts.

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SINCE 1908 Burkhart's legal forms—servicing Mid-Cont. oil fields, including Ill., La., Mo., Ind. & Ky. Free catalog & samples. Burkhart Ptg. & Sta. Co., 115 So. Cinn., Tulsa, Okla.

Ranches—Farm Land

RANCHES and FARMS
Oklahoma, Texas, New Mexico; new low bargain prices—mountains or plains. Howard Ingram, Perrine Bldg., Okla. City, Oklahoma.

Royalties

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
703 Kennedy Bldg., Tulsa, Okla.

WILL buy producing royalties and mineral rights in Arkansas. P. O. Box 807, El Dorado, Arkansas.

ROYALTIES PURCHASING TRUST, LTD., Moorgate Hall, Moorgate London E. C. 2, England, are buyers of producing oil royalties.

PRODUCING royalty investments wanted. Sebago Oil Co., 719 McBirney Bldg., Tulsa, Oklahoma.

Help Wanted

WANT salesmen in each state to sell new Sand pump on commission. You need coupe. P. O. Box 142, Tulsa, Oklahoma.

POSITION open as instructor in petroleum engineering, also position as graduate assistant in state university. In reply give education, experience, references, age, photo. Address Box K-261, The Oil and Gas Journal, Tulsa, Oklahoma.

LARGE established company desires sales representative with oil field and oil treating experience to sell Emulsion Breaking Chemicals in Oklahoma and Kansas. Salary. Give full details in reply as to age, experience, reference, education, etc. Address Box K-260, The Oil and Gas Journal, Tulsa, Oklahoma.

Situations Wanted

PETROLEUM Engr., University education, exp. in scouting, leasing, surveying, geology and geophysics, reliable, capable, and industrious; desires responsible position. Address Box K-250, The Oil and Gas Journal, Tulsa, Oklahoma.

Oil and Gasoline Distributing Companies! Corporate real estate, taxation, chain leasing man; specialist property tax assessment reduction; appraisal; successful tax saving record in present position greatly exceeding salary remuneration. Address Box K-262, The Oil and Gas Journal, Tulsa, Oklahoma.

FIRST CLASS refinery draftsman. Piping, structural steel, reinforced concrete and general engineering experience. Address Box K-263, The Oil and Gas Journal, Tulsa, Okla.

Survey Service

REMEMBER EAST TEXAS
When all other methods fail, employ my divining or dowsing method. If oil exists this method finds it. Faults, broken, treacherous areas accurately defined. Our Watson #2, first producer Wilmington, Calif. field, located by this method. More reliable than mechanical geophysics. Ask any unbiased oil authority. Many years' experience. A wise man investigates. George Miller, 1548 Post, Torrance, Calif.

CLASSIFIED ADVERTISING RATES

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times
3 Lines	$1.05	$1.80	$2.55	$3.30
4 Lines	1.40	2.40	3.40	4.40
5 Lines	1.75	3.00	4.25	5.50
6 Lines	2.10	3.60	5.10	6.60
7 Lines	$2.45	$4.20	$5.95	$7.70
8 Lines	2.80	4.80	6.80	8.80
9 Lines	3.15	5.40	7.65	9.90
10 Lines	3.50	6.00	8.50	11.00

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes

1 Inch	1 time	$5.00
1 Inch	13 times	4.50 per inch
1 Inch	26 times	4.00 per inch
1 Inch	52 times	3.50 per inch

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma